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BLUE JAY

A JOURNAL OF NATURAL HISTORY AND CONSERVATION
FOR SASKATCHEWAN AND ADJACENT REGIONS

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hirteen-lined Ground Squirrel

Photo by L. A. Morgotch, Yorkton

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SASKATCHEWAN NATURAL HISTORY SOCIETY
Regina, Saskatchewan

THE WILDCAT HILL WILDERNESS AREA

People everywhere have recently become acutely aware of the dangers of envir mental deterioration. Ever-increasing human populations are taking over and poison so much of the earth's surface that in the next century an earth unfit for all hig forms of life is entirely possible.

Canadians necessarily share this concern. The Canadian Government, for exam is trying to prevent irreparable damage to the delicate ecosystems of the Arctic. H in southern Saskatchewan the grassland ecosystem, though more stable, is ea plowed and destroyed. We have not yet been able to have any of it placed in the r tive safety of a National Park.

The Saskatchewan Natural History Society has tried to develop an understand of the possibility of an environmental crisis. When *Silent Spring* was published i 1962 we gave it a lengthy review because it clearly explained how persistent pois s like DDT, accumulate at the top of food chains and how man is dumping hundr s of chemicals into the environment without any knowledge of how this will af t the total ecosystem of the earth.

We passed resolutions asking that more study and public hearings be held bef e the draining of wetlands. Not only did there seem to be no need for the expansion f cereal production but the drainage practice was leading to loss of valuable hab t and the ever-increasing possibility of spring flooding in our valleys, villages and cit s.

Our Prairie Dog Sanctuary and our Maurice Street Sanctuary are two sr l areas which we have managed to have designated as protected areas in which va s other than farming, forestry or mining are recognized. Other groups in other part f Canada are also trying to protect small areas. These groups are now receiving l p and encouragement from the Nature Conservancy and larger areas will be prote d by the efforts of private Canadian citizens. The Editor, when attending the re t annual meeting of the Conservancy, was informed that this year officers of e Conservancy would visit Saskatchewan to meet naturalists and talk of acquisition f natural areas. This effort is also helped by IBP-CT (International Biological Progr - Conservation Terrestrial) which is not purchasing or providing money but whic is making detailed studies (check-sheets) of natural areas. These will be avail le internationally and pressure can develop for the protection of every kind of hab t and living plant or animal. If you value an area and wish to have it protected bey d your own life time, you should write to your editor who is a director of Na e Conservancy.

Individuals, whether property owners or not, can do much to help change e climate of thinking regarding problems of the environment. They can write to Pr e Minister Trudeau and Mr. J. Chrétien, Minister of Indian Affairs and North n Development pressing for another National Park. If concerned people do not exp ss their views, there will never be a national park in the beautiful South Nahanni a a, N.W.T. If we do not write to our federal and provincial governments, there will n er be a National Grassland Park in Canada. At this moment you should be writin to the Secretary, Public Hearings Office, National and Historic Parks Branch, 0 Laurier Avenue West, Ottawa 4, Ontario to speak on behalf of Prince Albert Nati al Park. You should support the Park Policy and speak against the vested inte ts which want to open the park to more permanent housing, to industry and comme al development and to more highways and motor toboggans. Attend the public hear gs on the future of P.A. National Park on June 28 in Regina or June 30 in Prince Al t. Press the provincial government for public hearings before they drain new a s, industrialize provincial parks, or open new areas for mines or lumbering or agricul e.

Real evidence that the thinking on environment is changing is given this ar by the Saskatchewan Government which has long adhered to the multipurpose con t. The Clean Environment Bill will help to prevent the death of our own clear, c an rivers, of Lake Winnipeg which receives much of our water and of the oceans o he world. We are a part of one finite and fragile ecosystem and if we don't prote it there is no point in trying to preserve a few square miles on the prairies. Se d, the Saskatchewan Government announced the establishment of the Wildcat ill Wilderness Area, 40,000 acres in the Pasquia Hills, in which there will be no n- bering, no mining and no roads.

We congratulate our government on their forward-looking policies and urge em to continue developing anti-pollution regulations and to continue to act as leade in the setting aside and protection of natural areas.

THE BLUE JAY

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THE WILDCAT HILL WILDERNESS AREA

by **Tom White**, Regina

On April 13, 1971, the Honourable J. Ross Barrie, Minister of Natural Resources, strongly supported by members of both sides of the house, announced in the Saskatchewan Legislature the creation of the Wildcat Hill Wilderness Area, the first of its kind so designated in the province. It is pertinent at this time to describe the park and some of the considerations concerned with its creation.

The Pasquia Hills are part of the rise between the first and second prairie steppes. (The first steppe extends as lowland marshes eastward to Hudson Bay.) The north and eastern slopes of the Pasquia and Porcupine Hills rise steeply from the muskegs. The Pasquia Hills rise approximately 1800 feet on the north slope reaching an elevation of 2740 feet at the highest point. From other directions, the hills, lacking the dramatic falls of the northern slopes, appear as a low, forested rise. They have a high rainfall, a moist atmosphere and therefore a more verdant flora than the drier prairies to the south. The area, in the words of the DNR news release "encompasses within its boundaries the headwaters of three streams—the Fir, Pasquia and Man Rivers all arise within a radius of one and one-half miles. . . . [The] protection of these headwaters is a vital element of the Wilderness Area. Bankside and Firhead Lakes, the Source of the Man and Fir Rivers, are in themselves a logical focal point of the area." On every slope the rivers come tumbling down from the higher ground until they become the slow-moving trout streams so prized by trout fishermen Some rivers have cut deep-sided ravines and canyons, and jack pine and spruce whirr as the wind sweeps through the forest. The Man River curves gracefully around Wildcat Hill which rises spectacularly above the surrounding country. The central core

The view north from Wildcat Hill

Preparing to cross a spring washout

of the area remains in its natural and undisturbed state and it is this tract of wilderness, 40,000 acres in all, that has now been set aside.

The hills formed an island during the recession of the last glacier that left a series of gravel shorelines indicating the levels of receding Lake Agassiz. Triceratops' skulls and sharks' teeth have been found in the sloughs and cut banks. On the gravel shorelines there are numerous prehistoric Indian campsites where arrows and artifacts may be found. From the air the streaking of the area by glaciers can be clearly seen although the question of how long the hills have been isolated is a matter for further research.

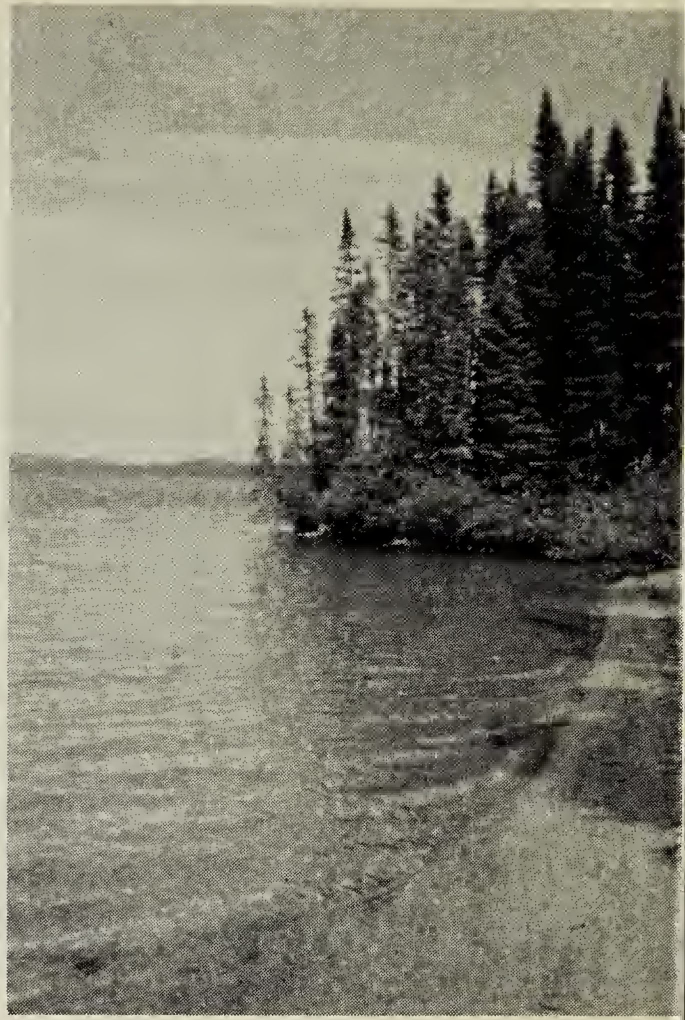
Within the hills there are many varied types of foliage and vegetation, for the generally inaccessible nature of the hills has protected both flora and fauna. The pollution-free rivers have banks lined with red willow. There are areas of jack pine, spruce, stands of aspen, poplar and birch, and wide expanses of muskeg. The marshes around the base of the hills and the forests and rivers contain botanical species that will take years of study to classify and enumerate.

The Pasquia Hills contain a wide variety of animal life. (The town of Hudson Bay calls itself the Moose-hunting Capital of the World!) The beaver are prolific and unattended trails are quickly submerged by water from dams. On the muddy trails the tracks of wolf, deer, moose and bear can almost always be found. In the hills there are woodland caribou, elk, deer, moose, beaver, muskrat, wolverine, weasel, lynx, bobcat, coyote, fox and flying squirrel; recently the buffalo have returned. A cougar was trapped in 1948 and there are annual reports of further sightings; there is a possibility that a few grizzly bears have survived. What is important is that nearly every animal of the Saskatchewan forests lives in the hills in relatively undisturbed habitat and that the Wilderness Area will provide an open-air laboratory for the naturalist who wishes to explore and conduct research.

In 1690 Henry Kelsey became the first white man to penetrate Saskatchewan and as he journeyed from The Pas one of his first sights would have been the long blue line of the Pasquia Hills. It was not far from here that Kelsey became the first white man in North America to describe the grizzly bear.

Louis-Joseph La Vérendrye and Anthony Henday would have seen the hills when they ascended the Saskatchewan in 1749 and 1754 respectively. Samuel Hearne established Cumberland House in 1774 in sight of the northern slopes.

When the Franklin Expedition wintered at Cumberland House in 1820, they sent Lt. Hood to draw "a moose deer" in the "Basquia Hills" from which area Cumberland House got most of its meat. A chapter in Franklin's book *Journey to the Polar Seas* contains both Lt. Hood's accounts and an illustration of the interior of an Indian teepee near the hills. Before the First World War, the Finger Lumber Company (in 1918 purchased by the Wintons and renamed The Pas Lumber Company) obtained a concession and floated logs down the Carrot River to their mill at The Pas. Judging by the size of the stumps remaining there were very large trees in the hills originally, although operations ceased when the economically accessible timber was removed. In September 1916 the immense Pasquia Forest Preserve became also the Pasquia Game Preserve. In 1940 a great fire burned for months on top of the hills and, though thirty years have elapsed the dead falls still indicate the result of this prolonged blaze. In the 1940's and '50's the first highway reached Hudson Bay and in the 1960's the Otosquen Road (now Highway 109) across the Hills to The Pas was constructed. Highway 163 has been recently constructed to the north of the Hills thereby making them accessible around their perimeter for the first time.



Sandy shore of
Bankside Lake

Fir River, a good
trout river

The creation of the Wildcat Hill ilderness area has been the result of e work of a great many organiza-ons and individuals. The Regina atural History Society held a series field trips in the Hills the report which appeared in the *Blue Jay* in 64. The Saskatchewan Natural His-ry Society passed in 1965 the first ficial motion asking for a wilderness rea to be set aside and this was in rn supported by the Saskatchewan ildlife Federation in 1965 and 1970. r. Mazure brought the matter to the ttention of the provincial Home-ming Committee and obtained the pport of the town of Hudson Bay. he sympathetic co-operation of the impson Lumber Company in with-rawing its cutting rights also contributed in making the proposal possible. Indeed, fishermen, canoeists, naturalists, biologists, as well as many interested private citizens, have all assisted in creating a favourable climate of public opinion. Most important is the foresighted attitude of the Department of Natural Resources without which no progress could have been made.

The fascination of the Pasquia Hills, then, lies in their wild and inaccessible nature and in the knowledge that so many animal and plant species live within them. With the establishing of this first wilderness area all conservationists will experience a sense of pride and a further stimulus to work for the setting aside of other similar areas in the province.

THE PROPOSED ARCTIC INTERNATIONAL WILDLIFE RANGE

by **Everett B. Peterson**, Vancouver, B.C.

Members of the Saskatchewan Nat-ral History Society will be interested following the outcome of the confer-nce on the Arctic International Wild-ife Range because in the manner in hich it was structured, its goals, and he various follow-up steps this con-erence could serve as a model for ringing together the interests of con-ervationists, industrialists and gov-rnments and for developing an ap-roach to land management that all an endorse. While we must await the utcome of proposals from this con-erence, it is evident that it represented n important first step toward desig-ation of an Arctic International ildlife Range in an area that still ossesses, comparatively unchanged, n unusually wide range of landforms nd native life, including indigenous eople. Of particular importance are he caribou, currently numbering in xcess of 100,000, that have an inter-ational migration pattern in the area roposed for a Wildlife Range. The habitat of these large herds is still intact but their future cannot be guaranteed without a substantial range that is permanently protected in both the Yukon Territory and Alaska.

The conference was held at Whitehorse, Yukon Territory, on October 21 and 22, 1970; it was hosted by the Yukon Conservation Society and was under the general chairmanship of Dr. A. R. Thompson, Faculty of Law, University of British Columbia. Conference delegates, 50 from Canada and 14 from the United States, included representatives of the native peoples, Federal and Territorial governments, industries, universities, and several conservation organizations. The broad objective of the conference was to explore ways by which the diverse interests in the extreme northern part of the Yukon Territory might be adjusted to allow designation of a wildlife range in Canada that would be continuous with Alaska's Arctic Wildlife Range.

The conference proceedings will be published in the June issue of the University of British Columbia Law Review and will include the background paper prepared for the conference by Conservation Associates, San Francisco, all resolutions, and the following papers:

Opening address: J. Smith, Commissioner of the Yukon Territory.

History and status of the Arctic National Wildlife Range, J. D. Findlay, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon.

Wildlife resource and its conservation in northern Yukon Territory, A. M. Pearson, Research Scientist, Canadian Widlife Service, Whitehorse, Yukon;

Some economic and social implications of the proposed Arctic International Wildlife Range, P. H. Pearse, Department of Economics, University of British Columbia, Vancouver.

The significance of the proposed wildlife range to industry. E. L. Patton, President, Alyeska Pipeline Service Co.;

A legal structure for the proposed wildlife range. A. R. Thompson, Faculty of Law, University of British Columbia, Vancouver.

Ice Age mammal research in the Yukon Territory and Alaska, C. R. Harington, Curator of Quaternary Zoology, National Museum of Natural Science, Ottawa.

The central resolution of the conference dealt with land use and was worded as follows:

> "This conference resolves that the uses which society as a whole may make of the area, including research, interpretation of natural and prehistoric cultural phenomena, wildlife and fisheries management, petroleum and mineral development, pipeline and other transport routes, disposition of surface deposits such as gravel and support of hunting and sport fishing, may be permitted on all or part of the range as will be determined by the management authority, under such restrictions and regulations as are necessary to maintain wildlife populations and safeguard the traditional life of the native peoples."

An interim committee has bee appointed to carry forward the conference resolutions and to seek to integrate the establishment of a wildlif range with the implementation of land use regulations under the Territori Lands Act (1970). Members of th interim committee are: Ian McTaggart Cowan, Dean, Faculty of Graduate Studies, University of Britis Columbia; John Tener, Director Canadian Wildlife Service, Ottawa Michael Stutter, Yukon Territori Councillor; Bob Cathro, Archer, Cathr and Associates, Consulting Engineer Vancouver; George L. Collins, Conservation Associates, San Francisco Andrew R. Thompson, Faculty Law, University of British Columbi

The proposal to establish a wildlif range has been presented to th Minister of Indian Affairs and Northern Development and is now unde study by officers of that Departmen There has been a positive response t the suggestion that the initial st should be designation of the propose wildlife range as a land managemen zone when the land-use regulations a brought into force. For this to occu there must be a continuation of t kind of support and enthusiasm th was displayed at the Whitehorse co ference. To this end, a society is bei incorporated under the Yukon Ordi ances. It is visualized that the socie will assist in a research and educati role for at least a five-year period until an Arctic International Wildli Range and an established manag ment authority become realities. Cha ter members of the society will drawn from amongst those who atten ed the Whitehorse conference. Anyo else wishing to support the objectiv of the proposed society and to beco members-at-large should contact M John Lammers, Box 1063, Whitehor Yukon.

Readers interested in a copy of t complete conference proceedings m obtain one from Mr. Dennis McCr Faculty of Law, University of Briti Columbia, Vancouver 8, B.C.

POTTED SANDPIPERS AS POSSIBLE INDICATORS OF MERCURY CONTAMINATION OF RIVERS

by **Kees Vermeer**, Canadian Wildlife Service, Edmonton

Islands in the North Saskatchewan River above and below Edmonton were nvestigated during the summer of 970 for the purpose of finding a suitble species of aquatic or shore bird to erve as an indicator of the mercury ontamination of that river. Although Common Goldeneyes, which were mong the four most common species bserved, would have been preferred as ndicators because of their known diet f aquatic invertebrates (Kortright, *The ducks, geese and swans of North America*, Stockpole Co., Harrisburg nd Wildl. Mgt. Inst., Washington, 962), no nests of this species were found. Of all the aquatic and shore irds observed, Spotted Sandpipers *Actitis macularia*) were most freuently seen and their nests were asily found. Observations made elsewhere in North America have shown that Spotted Sandpipers feed chiefly n aquatic and terrestrial insects and ccasionally on small fish (Bent, *Life istories of North American shore irds*, Part I, U.S. Natl. Mus. Bull. 42, New York, 1927), but the proortions of the two groups of insects o one another within their diet apears to be unknown. For that reason 6 specimens were collected along the North Saskatchewan River during the rst weeks of July and August, 1970. The project was started during midune so no data on food habits are vailable earlier than that date. Thirty-one of the 36 stomachs analyzed contained food items (Table I). t was interesting to find that terresrial insects occurred much more freuently than aquatic insects, with weevils constituting the most important food item of the sandpipers' iet. Of the three most frequently ccurring insect families, Curculiondae and Hydropsychidae occurred more frequently in July than August, while the Formicidae showed the oppoite trend.

Table 1: Percentage occurrence of insect families in stomachs of 31 Spotted Sandpipers collected along the North Saskatchewan River, Alberta, in 1970.

	First week of July	First week of Aug.	July and Aug.
	15	16	31
Coleoptera			
Curculionidae	94	47	71
Haliplidae†	25	40	32
Carabidae‡	31	27	29
Scarabaeidae	13	7	10
Dytiscidae†	13	0	6
Cerambycidae	6	0	3
Tenebrionidae	6	0	3
Hymenoptera			
Formicidae	44	80	61
Vespidae	0	7	3
Ichneumonidae	0	7	3
Teuthrinidae	6	0	3
Trichoptera			
Hydropsychidae*	56	27	42
Hemiptera			
Cicadellidae	25	13	19
Pentatomidae	0	7	3
Lygaeidae	0	7	3
Plecoptera			
Perlidae*	31	0	16
Diptera			
Dolichopodidae‡	6	27	16
Tachinidae‡	6	13	10
Empididae * or ‡	13	0	6
Culicidae	13	0	6
Sciomyzidae*	0	7	3
Stratiomyidae*	0	7	3
Chironomidae*	6	0	3
Sarcophagidae	6	0	3
Odonata			
Libellulidae*	6	13	10
Lestidae*	6	7	6
Orthoptera			
Acrididae	13	7	10

† aquatic adult
* aquatic larva
‡ shore insect

One egg from each of 33 sandpiper nests was collected on river islands in June and July. Fourteen eggs were from upstream of Edmonton, between Huggett and Devon, and 19 eggs were collected downstream from Edmonton between Vinca Bridge and Duvernay. The eggs were analyzed for residues of mercury in order to determine whether they could be used as indicators of mercury contamination sources located at Edmonton and/or downstream from that city. The mean and 95 per cent confidence interval of mercury residue levels in the 14 sandpiper eggs collected upstream from Edmonton were 0.09±0.03 ppm, as compared to 0.28±0.06 ppm in the 19 sandpiper eggs collected downstream from tha city. The difference between thos levels is statistically significant an suggests a source of mercury contami nation at and/or downstream of Ed monton. As the sandpiper's diet con sists of both terrestrial and aquati insects, the source of mercury pollu tion could not be further identified.

Although the Spotted Sandpip does not appear to be a suitable ind cator of mercury contamination of th North Saskatchewan River, we ob tained a little more knowledge of i food habits and its occurrence alon the river. The authors thank Mr. I Kavanagh for his assistance with th identification of insects.

RECENT BIRD NOTES OF INTEREST FOR CHURCHILL, MANITOBA

by **Ron Pittaway,** 79 College Avenue, Ottawa, Ontario
and **Robert W. Nero,** 546 Coventry Road, Winnipeg, Manitoba

Shortly after the publication of any local annotated list of birds a number of unusual birds are sure to appear in that locality. The following records include seven species not previously reported for Churchill, three of which are first records for Manitoba. Nearly all were obtained at Churchill at the time the recently published *Birds of the Churchill region, Manitoba* (Jehl and Smith, 1970) was in the hands of the printer. Judging by these additions, the Churchill region still offers ornithological surprises.

The senior author, who was at Churchill studying birds from May 5 to July 23, 1970, looks upon Churchill as the Point Pelee of the north. Birders who have spent any time at Point Pelee National Park on Lake Ontario will appreciate this remark, for the Point Pelee area attracts swarms of migrant birds in both spring and fall. Churchill is now a Mecca for birders who wish to see a lot of birds that are difficult to find anywhere in southern Canada. It also offers a chance to see birds that are rare on the continent.

Thanks are due the following pe sons for the use of their records for supporting observations: Dunca R. Mackenzie, Churchill; Paul Mirs and others in his party, Queen's U versity, Kingston, Ontario; Dr. I Newton, Nature Conservancy, Edi burgh Scotland; Jerry Rosenba Skokie, Illinois; and Mrs. Blanc Smith and Irwin H. Smith, Churchi

SPECIES LIST

Harlequin Duck *Histrionicus histrionicus*

A male in breeding plumage w observed by Pittaway and I. Newt on the Churchill River at Cape Mer July 11, 1970. The bird was stud closely for half an hour with bino lars and a Bausch and Lomb 15 x zoom-telescope, at times as close 200 feet. It was observed swimmi in flight, and sitting on exposed roc It was last seen by Pittaway on J 14.

This is the first record for Church As pointed out by Manning (19

8), Blakiston reported one from York Factory, 140 miles southeast, prior to 863. There are seven additional Manioba records, including several specinens, from The Pas southward, from 898 to 1969. Godfrey (1966: 74) rearded it as a "rare transient" in cenral Canada.

ommon Merganser *Mergus merganser*

First recorded June 16, 1970 when Pittaway and P. Mirsky observed six ff Cape Merry.

Only previous record for Churchill, pair seen June 27, 1941 (Jehl and Smith, 1970: 32).

ed-tailed Hawk *Buteo jamaicensis*

An adult was seen June 9, 1970 by Pittaway and J. Rosenband about a nile north of Twin Lakes. The red pper surface of the tail could be seen asily as the bird glided and moved lowly from east to west.

Jehl and Smith (1970: 32-33) list ive previous occurrences.

Whooping Crane *Grus americana*

D. R. Mackenzie reported (pers. cores., November 30, 1970): "On August 2th and 13th, 1969, I saw what I dentified as a Whooping Crane about ne - half mile east of the Rocket aunching Site. I watched it with 10 ower field-glasses for about 10 or 15 ninutes. My attention had been drawn o it by three seagulls which were wooping on it; it took off by jumping nto the air, not running on the ground, ts wing action was slow and strong, lark face and black wing tips, and egs trailing backwards. The second ime I saw it it was flying in the same eneral area and heading south . . . . "

Jehl and Smith (1970: 36) give two records, a family group of three n October 1, 1953, and a group of hree on September 6, 1964. Its occurence in recent years in southern Manitoba, where it might be expected, as been poorly documented and it must be considered a rare transient here. These northern records are far east of the expected migration route from Wood Buffalo National Park to Texas. An unusual route or even another subarctic breeding locality should be considered.

Yellow Rail *Coturnicops noveboracensis*

One was heard by Pittaway at La Pérouse Bay on June 24, 1970. This is three days earlier than previously recorded (Jehl and Smith, 1970: 37). Often as many as six could be heard calling at once at La Pérouse Bay and one was seen by Pittaway on June 28, 1970.

Ruff *Philomachus pugnax*

Pittaway observed an adult of undetermined sex arrive at the National Harbour Board pool nearest the townsite, along with Lesser Yellowlegs and Short-billed Dowitchers at 5:15 p.m., June 23, 1970. Although clearly an adult it was in molt and was closer to fall plumage than breeding plumage. He studied the bird closely with a 15 x 60 telescope while it was feeding, noting two rather large oval white patches at the base of the tail, a stout bill, yellowish at the base, orange-yellow legs, dark brown back and upper breast. A narrow wing stripe in flight and a broad black central stripe on the rump were also recorded. This bird was seen also by Blanche and I. H. Smith, and I. Newton. Pittaway had seen Ruffs on two previous occasions in Ontario; Dr. Newton was familiar with this species in England.

There is no previous record for Churchill or Manitoba. Godfrey (1966: 164) reports one collected at Fort Severn, Ontario on Hudson Bay, about 315 miles southeast of Churchill. The latter author regards this species as an "accidental visitor from Eurasia." However, Peakall (1965) suggests that it may breed in North America. Jones and Myres (1968: 21), reporting on a flock of four Ruffs observed in southern Alberta, May 15, 1967, felt it might be breeding in the Canadian north, "possibly even in one of the Prairie Provinces." Myres (pers. corres., 1968) later said he thought the subarctic area of northern Manitoba was a likely place to look for it as a possible breeding bird. Other records from adjacent areas include one collected at Regina, Saskatchewan, May 8, 1965 (Brazier, 1965), one seen at Saskatoon May 9-19, 1970 (Roy, 1971), and one studied near Alberta, Minnesota, May 23, 1964 (Strubbe, 1964).

Solitary Sandpiper *Tringa solitaria*

So few late summer dates are available for this species it seems worth-recording that D. R. Mackenzie obtained one with a broken wing in mid-August, 1970 (pers. corres., 1970). It is regarded as uncommon to rare in the region (Jehl and Smith, 1970:41).

Wilson's Phalarope *Steganopus tricolor*

Pittaway observed two females and a male in the Harbour Board pools, May 30, 1970. Field marks could be checked easily by comparison with nearby Northern Phalaropes. The Wilson's Phalaropes remained there for at least two weeks. They were seen in the pools by D. R. Mackenzie, J. Rosenband, and a number of others including P. Mirsky.

On July 12, a single Wilson's Phalarope in fall plumage (male) was seen by I. Newton, P. Mirsky and Pittaway in a pool near the airport runway. Blanche Smith observed one with three Northerns in a pond near the runway on three occasions during the last two weeks of July.

There are no previous records of this prairie-nesting species for Churchill, other than a supposedly invalid nesting report for the early 1930's (see under Northern Phalarope, Jehl and Smith, 1970: 42).

Ring-billed Gull *Larus delawarensis*

Three adults were studied at close range with a telescope at the Harbour Board pools, June 19, 1970, by Pittaway. Size, yellowish-green leg color and ring on the bill were readily observed. Herring and Bonaparte's gulls were present for comparison. One was seen also on July 2 at Cape Merry.

Jehl and Smith (1970: 51) give one previous record, one seen on June 14, 1968.

Black-headed Gull *Larus ridibundus*

British ornithologist Dr. Ian Newton observed an adult in breeding plumage at the Fort Churchill garbage dump, July 23, 1970. Being completely familiar with this species in England he had little difficulty making the identification, noting a brown hood, red bill, a flash of white in the wings, and the slaty-colored underside of the primaries. His observation was discussed in detail with Pittaway.

This is the first record of this species for Manitoba. Regarded in Canada as a "rare visitor" from the Old World, it has not previously been reported west of Ontario (Godfrey, 1966: 183).

Little Gull *Larus minutus*

An adult in breeding plumage was seen with several Bonaparte's Gulls at the Harbour Board pools, July 20, 1970, by Pittaway, Blanche and I. H. Smith, I. Newton and many others. Pittaway, who was familiar with this species in Ontario, noted its dark hood, dark red bill, slate-black wing linings and lack of white in the forewings. Alongside Bonaparte's Gulls it seemed a third smaller and had a much smaller head. At times it was studied as close as 20 feet. Although details are lost in the poor photograph that is available the smaller size is evident.

This is the first record of this Old World immigrant for Manitoba. A male, apparently on territory in a colony of Bonaparte's Gulls, was collected on June 28, 1962, in northwestern Saskatchewan (Nero, 1963: 87). There are numerous records for the Atlantic coast and it occurs frequently in southern Ontario, where it has recently been found nesting (Godfrey, 1966: 185).

Common Tern *Sterna hirundo*

Pittaway observed one June 3, 1970, perched on a rock with a few Arctic Terns at the Harbour Board pools; all were in full breeding plumage. Using a 15 x 60 zoom-telescope he recorded the larger tarsal length, longer bill coloured orange-red (instead of a dark blood red) with a black tip. Paler contour plumage and longer wings, exnding beyond the tail, were evident. ne was seen here on many occasions June and Pittaway was able to show to P. Mirsky.

Jehl and Smith (1970: 53) reported ghtings, but none as well documented the above.

ourning Dove *Zenaidura macroura*

Pittaway and J. Rosenband saw one close range as it flew along the coast ear Paradox Creek, June 12, 1970. osenband had seen one a few days rlier.

There are six previous records cited y Jehl and Smith (1970: 55), the last 1957.

ank Swallow *Riparia riparia*

Pittaway had a good look at one at e Harbour Board pools, June 13, 970, noting the breast band, brown ack, and buzzy manner of flight. He aw one again later on the same day ver the water at the tip of Cape erry.

Although not previously reported or Churchill, H. Hosford observed it the west on the Wolverine River in 966 (Jehl and Smith, 1970: 60).

liff Swallow *Petrochelidon pyrrhonota*

Pittaway and J. Rosenband saw one ying over the townsite, June 11, 1970.

Jehl and Smith (1970: 60) had no ecords but noted that "its occasional resence in Churchill is to be exected."

rown Thrasher *Toxostoma rufum*

Pittaway and J. Rosenband found a ale singing from the top of a power ole on Harbour Board property, June 2, 1970.

Recorded at Churchill on three preious occasions (Jehl and Smith, 1970: 2).

ellowthroat *Geothlypis trichus*

D. R. Mackenzie found an immature ale (examined in the flesh by Nero) live but with its tail and claws frozen nto the ice in a small pond surrounded y willows, November 11, 1970. It was ept alive until November 13.

Jerl and Smith (1970: 67) reported several summer records, but with no indication of any breeding locally.

Pine Grosbeak *Pinicola enucleator*

D. R. Mackenzie reported that "one of a flight of five that was around here for about a week" was rescued from a Labrador dog on October 14, 1970 (pers. corres., 1970).

Recorded at Churchill to August 23 with the observation that "later records can be expected" (Jehl and Smith, 1970: 69).

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NEST RECORDS SCHEME

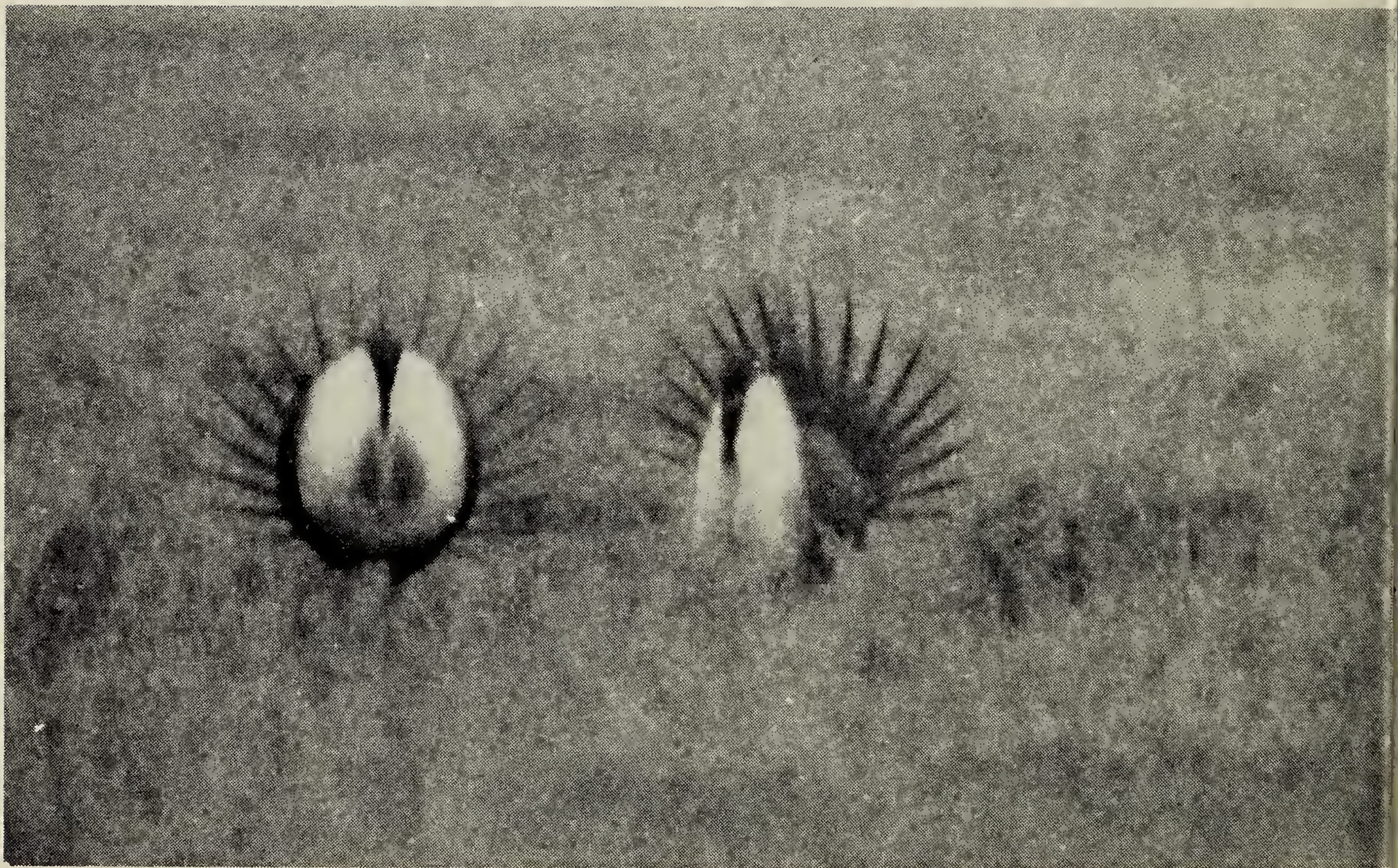
For the 1970 season 1476 nest record cards on 129 species were received from 68 Prairie Provinces and NWT contributors. Cards have been checked and entered in the master files. During the year the following cards were used: Tree Swallow (Maritime Blackbird (Royal Ontario Museum); Forest Ranger School); Brewer's Townsend's Solitaire, Lesser Yellowlegs and Indigo Bunting (University of Michigan).

Summary of 1970 contributors and cards may be obtained from the editor. Cards and instructions may be obtained from H. W. R. Copland, Coordinator Prairie Nest Record Scheme, Manitoba Museum of Man and Nature, 190 Rupert Ave., Winnipeg 2, Manitoba.

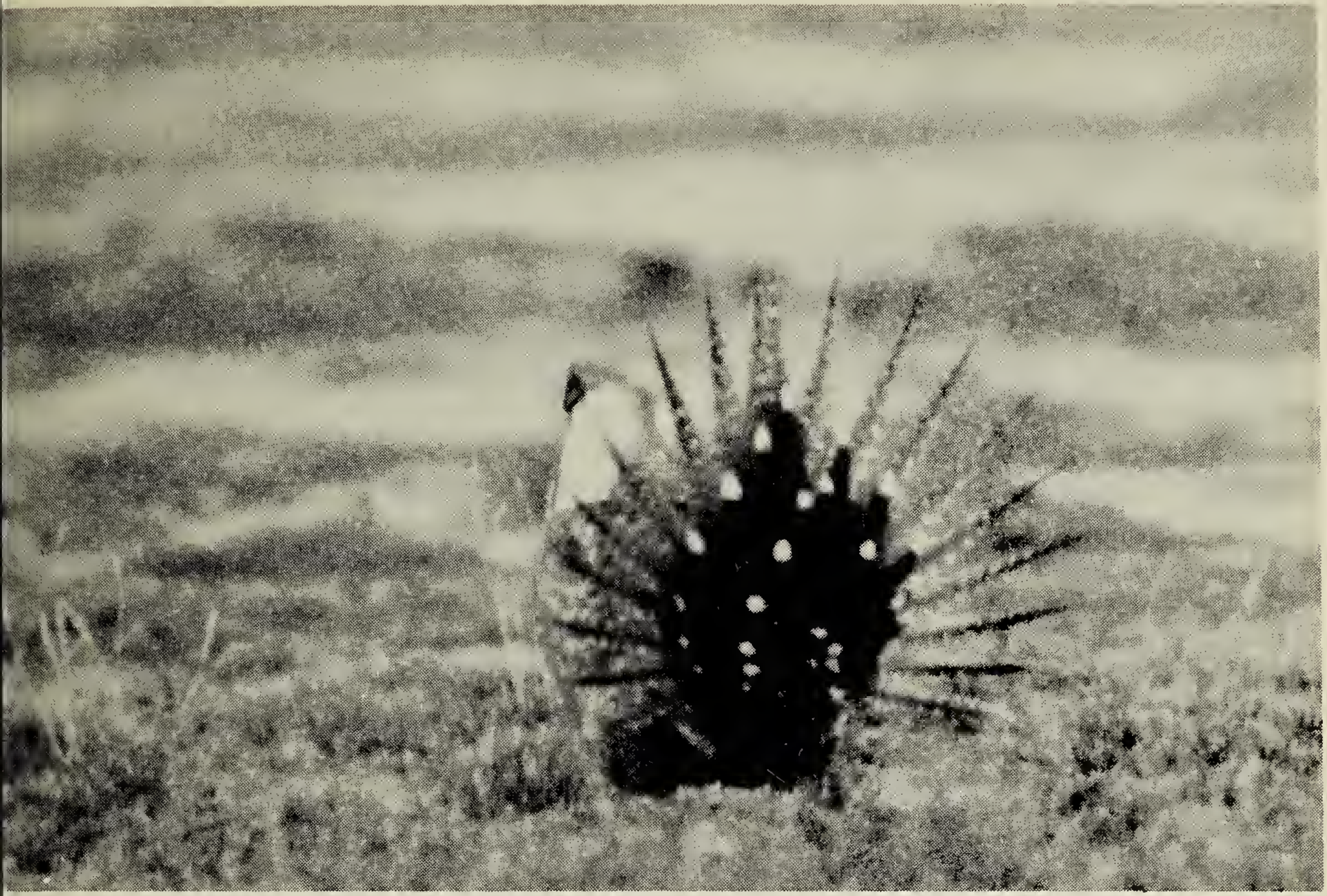
REGINA BIOLOGY CLASS STUDIES NESTING AND COURTSHIP BEHAVIOUR OF SAGE GROUSE

Photographs by **John Stronski,** Regina

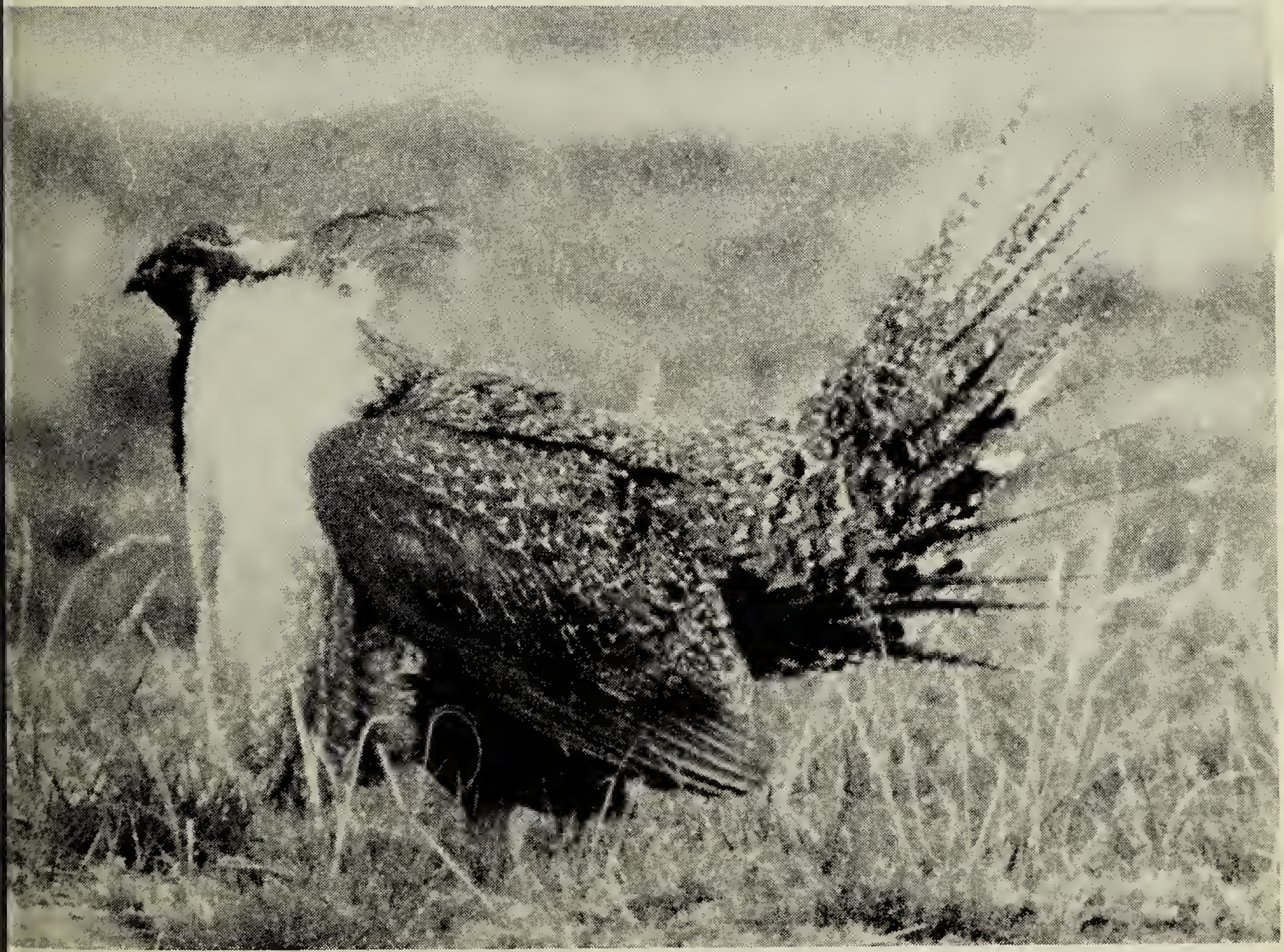
Sage Grouse nest search in sagebrush-grassland habitat in Frenchman River valley, May 11, 1971.



Two adult Sage Grouse cocks displaying at adjacent boundaries of their territories.



Rear view of fan-tailed displaying cock
Sage Grouse, May 11, 1971.



Lateral view of displaying cock Sage Grouse showing distended
oesophageal sac and erect filoplumes on head. Note drooping wings.

NOTES ON THE BIRDS OF MT. ROBSON PROVINCIAL PARK, 1970

by **David Stirling,** Department of Recreation and Conservation, Victoria, B.C.

These notes on 113 species recorded during one summer's intensive field work in Mt. Robson Provincial Park were part of a natural history survey initiated by the British Columbia Parks Branch which would be the basis for a nature interpretation program. An additional 11 species (five of which Riley recorded as breeding in the park) were observed just beyond the park's boundaries. Most of my observations were made at low elevations from the Yellowhead Pass on the Alberta border to the confluence of the Robson and Fraser Rivers near the park's western boundary, but late in July I spent four days in sub-alpine and alpine areas in the vicinity of Berg Lake, north of Mt. Robson.

The Yellowhead Highway runs for 40 miles in an east-west direction through the middle of the park. From the low Yellowhead Pass (3,711 feet) the highway follows the valley formed by Yellowhead Lake, Moose Lake and the Fraser River. Between Moose and Yellowhead Lakes there are several marshy areas, ponds, and muskegs where birds are abundant in number and variety. These areas are the "Marshes" frequently referred to in the annotated list.

At low elevations, lodgepole pine (*Pinus contorta*), white spruce (*Picea glauca*), trembling aspen (*Populus tremuloides)* and willows *(Salix* spp.) are the abundant tree species. There are also scattered Douglas fir *(Pseudosuga menziesii)*, western white birch *(Betula papyrifera)*, black cottonwood *(Populus trichocarpa)* and alpine fir *(Abies lasiocarpa)* in these mixed forests. At higher elevations and on north-facing mountain slopes alpine fir forms dense forests. White bark pine (*Pinus albicaulis*) is common near timberline. Black spruce (*Picea mariana*) forms thick groves in the muskegs. The mixed forest has a well developed understory of red-osier dogwood (*Cornus stolonifera*), thimbleberry *(Rubus parviflorus)*, soopolallie (*Sheperdia canadensis*) and huckleberry *(Vaccinium* spp.*)*. A narrow strip of typical Columbia Wet Belt Forest dominated by large western red cedar (*Thuja plicata*) and western hemlock (*Tsuga heterophylla*) is found in the vicinity of Mt. Robson Ranch and along the Robson River to Kinney Lake. Above 6,000 feet there are extensive alpine regions with meadows, bare rock and ice.

Information about the birds of the Canadian Rockies is meagre and incomplete, and most of that which is available comes from the drier Alberta side of the Continental Divide (Cowan, 1955). The check-list of birds of Jasper National Park (1966) lists 194 species that have been reliably reported from that area.

For information about the birds of the western side of the Divide we must refer to the expedition of the Alpine Club of Canada in the summer of 1911. J. H. Riley, a member of the expedition, collected or observed 78 species in the Yellowhead Pass, Moose River and Mt. Robson region. Riley crossed the Yellowhead Pass into British Columbia on July 9, and did much of his work in the alpine and sub-alpine areas along the Moose River. He comments on the scarcity of bird life along most of his route. My own observations in the alpine and sub-alpine areas west and north of Mt. Robson agree with those of Riley but I found birds abundant at lower elevations along the highway, particularly between Moose and Yellowhead Lakes and along the lower part of the Robson River in the western part of the park an area not worked by Riley. Thrushes flycatchers, vireos and warblers were singing and noticeable in June and early July, but there was a sudden lrop in volume and variety of bird ounds after July 10. There is no loubt that the month of June is the est time to visit the boreal forests in rder to make a survey of the breeding listribution and abundance of small asserines.

Riley records the following species vhich I did not see (species with astersk indicating either nests or young een): White-winged Scoter, Hooded Ierganser, Cooper's Hawk, Roughegged Hawk (a sight record on July 6 seems questionable and it is not ecorded on the Jasper National Park heck-list), Marsh Hawk, Pigeon Hawk, Blue Grouse*, Willow Ptarmigan*, Baird's Sandpiper, Bonaparte's ull, Common Nighthawk, Arctic Three-toed Woodpecker, Mountain luebird, Water Pipit, Myrtle Warbler, Gray-crowned Rosy Finch*, avannah Sparrow, and Slate-colored unco*.

I arrived in the park too late to see pring migraton patterns, except that Vestern Grebes and Surf Scoters seen n Moose Lake on June 17, but not ubsequently recorded, seemed to indiate a movement of non-breeding vater birds through the pass.

Movements of birds were noticeable n the early fall. In late August, ducks ncreased in numbers and Canada eese appeared. Magpies came in from he east to the park dumps and Clark's Nutcrackers became common at lower levations. Both Black and Vaux wifts were seen more often. Flocks f mixed warblers were noticed, but lirections of movement could not be scertained. Small flocks of Robins, edar Waxwings and Pine Siskins, bviously on the move, were seen. At he end of August there was also an nflux of Sparrow Hawks and Sharphinned Hawks.

pecies observed in Mt. Robson rovincial Park in 1970

ote: In the following list, an asterisk ndicates that either nests or young vere seen; two asterisks indicate that ither singing males on territories or erritorial behaviour were observed.

***Red-necked Grebe:** A pair with one oung was seen on the marshes at the east end of Moose Lake, June 22. As many as eight birds were seen in July, and four or five were present in the same area throughout August.

****Horned Grebe:** A pair in full breeding plumage was present on the marshes from June 20 to September 2 but no nest or young were seen.

Western Grebe: Six were seen on Moose Lake, June 17, and one on Kinney Lake, July 17. None was seen on Moose Lake after June 17 which seems to indicate that these birds were late non-breeding migrants on their way to the prairies.

Great Blue Heron: One at the east end of Moose Lake, August 19. I had reports of herons in this same area from park visitors and a CNR railway engineer. Several were seen in the Valemount marsh.

Canada Goose: Although this species was present all summer just across the divide in Jasper National Park, I had only two records for Robson Provincial Park: one on Yellowhead Lake, August 17, and 14 on Moose Lake, August 29.

***Mallard:** About a dozen, including two broods, were regularly seen on the marshes.

Pintail: Three on the marshes on August 25.

Green-winged Teal: Two males were seen on the marshes, June 24.

Blue-winged Teal: One on the marshes, July 27.

Ring-necked Duck: One male on the marshes on June 20, and two pairs on June 24.

***Barrow's Goldeneye:** Four females were on the marshes, June 20; one female with eight young on July 13.

Bufflehead: Two males were seen on the marshes, June 20.

Harlequin Duck: One female was seen on Berg Lake on July 19 and again July 21.

Surf Scoter: An immature was seen on Moose Lake, July 17.

Common Merganser: Two were seen on the marsh, July 7, and two on Kinney Lake, July 17.

Goshawk: One was seen in flight on the Berg Lake trail, July 18.

Sharp-shinned Hawk: Three were seen in late August.

****Red-tailed Hawk**: Possibly the commonest raptor in the park. Ten were seen at widely scattered points along the valley during the summer.

Golden Eagle: Observed only twice; one near Berg Lake on July 19, and two over the high ridges south of Moose Lake on August 19.

****Osprey**: Observed eight times, at Red Pass, Whitney Lake and Yellowhead Lake.

Sparrow Hawk: Individuals were seen at scattered points in June and July but there were more sightings in late August, apparently indicating a migratory route through the valley.

***Spruce Grouse**: This species seemed to be scarce. A female and young were observed at Berg Lake, July 21 (three other sightings were reported by hikers.)

***Ruffed Grouse**: Common in mixed forests. Males were heard drumming in late June, and several broods were seen.

***White-tailed Ptarmigan**: Although this species was not seen by the writer, it undoubtedly occurs in suitable alpine habitat. Only one family group was, however, reported by hikers in the high country.

****Sora**: This species was heard many times in the marshes from June 22 to early August.

American Coot: First noted on July 13. One was seen on Yellowhead Lake and three were seen on the marshes throughout August.

****Killdeer**: One was seen at the gravel pit near Red Pass from June to August. Its actions indicated a nest nearby but none was found.

****Common Snipe**: Snipe were seen and heard at the marshes throughout the summer.. One was seen flying over Red Pass, August 14.

****Spotted Sandpiper**: This was a common species on the outwash plains of glacial rivers and rocky beaches.

Solitary Sandpiper: On July 28 one was seen at a woodland pond east of Moose Lake.

Lesser Yellowlegs: Three were seen on mud flats at the east end of Moose Lake, July 27.

Pectoral Sandpiper: Two were with the Lesser Yellowlegs, July 27.

Long-billed Dowitcher: Three with other shorebirds at the east end of Moose Lake, July 27. Markings and call notes led me to identify them as *L. scolopaceus*.

Semipalmated Sandpiper: Three were seen with the other shore birds on the mud flats on July 27.

California Gull: Immature large "white gulls" were often seen in flight along the Fraser River. Highest number seen was a flock of 16. Several of these gulls were identified as *L. californicus*. Ring-billed and Herring Gulls may also have been present.

Mourning Dove: On July 27 one was seen at the east end of Moose Lake. This was the only record for the park but doves were seen in Jasper and they were common at Valemount.

Great Horned Owl: The only owl recorded was a fresh road kill of this species picked up just east of Moose Lake on August 29.

****Black Swift**: Two (or sometimes four) were frequently seen over the nature house near the western entrance to the park throughout the summer Six were seen at Berg Lake, July 22 Eight were seen on August 28.

Vaux Swift: First seen August 1 at Red Pass; one over Robson Station August 15; and four at Red Pass August 25.

****Rufous Hummingbird**: Commo from the valley bottom to sub-alpin meadows from June 17 to mid-Augus

****Belted Kingfisher**: Scattered indi viduals were seen along Moose an Yellowhead Lakes.

Red-shafted Flicker: A scarce spe cies, local along the highway.

****Pileated Woodpecker**: Two wer seen near the nature house, June 1 During July the species was hear several times.

****Yellow-bellied Sapsucker**: Singl birds were seen and heard drummin in the vicinity of the nature house i late June and early July.

Hairy Woodpecker: One record: or at the east end of Moose Lake, July 2

Northern Three-toed Woodpecker: One record: an individual in a spruce grove near Red Pass, July 29.

****Eastern Kingbird:** A pair was present at the east end of Moose Lake from June 20 to August 19.

****Traill's Flycatcher:** This flycatcher was seen and heard near Red Pass in June.

****Dusky Flycatcher,** ****Hammond's Flycatcher,** ****Least Flycatcher:** All three species were present in suitable habitat. They could be separated by voice and habitat in June. The Least was the commonest in the mixed forest of the valley, Hammond's was the scarcest.

Western Wood Pewee: Heard in June. Scarce in the park but very common in the dry, open pine forests near Valemount.

****Olive-sided Flycatcher:** Scarce at ower elevations but common in old burns at timberline and in open pine forests west of the park.

***Violet-green Swallow:** Seen in small numbers throughout the valley, usually in the vicinity of buildings.

****Tree Swallow:** Moderately common, but less so and more scattered than Violet-green Swallows. Pair seen at a dead tree at the east end of Moose Lake in June and July.

****Bank Swallow:** Common, but no nesting locations found.

****Rough-winged Swallow:** Scattered pairs were seen throughout the valley.

***Barn Swallow:** Nests with young were seen at Robson Station, Robson Motor Village, and Red Pass.

***Cliff Swallow:** There was a colony of about 75 birds at Red Pass. Twelve nests were counted on the station building, others were seen under the eaves of private houses.

***Gray Jay:** Moderately common from valley bottom to timberline. Juvenile birds seen.

Steller's Jay: Two records: one June 19, and one August 19.

Black-billed Magpie: Although the magpie is very common in Jasper National Park it is scarce in Mt. Robson Park and absent in British Columbia north of the Dry Interior. One was seen at Robson Motor Village on June 19, and no others were seen until August 28 when three appeared at a dump near Yellowhead Lake. These birds were possibly fall wanderers from east of the Continental Divide.

****Common Raven:** Ravens were scarce until mid-July when they became increasingly common, particularly along the highway, and at garbage dumps. Groups of up to a dozen were seen in August.

****Common Crow:** Very common along the highway and at dumps. A flock of 125 was seen at Red Pass, August 24.

Clark's Nutcracker: This species was fairly common in the high country at Berg Lake, July 18 to 21. It was not seen at lower elevations until August 15 but in late August, Nutcrackers became fairly common along the ridges at lower elevations.

****Black-capped Chickadee:** A moderately common species in mixed forests throughout the park.

***Mountain Chickadee:** Only one record: a family group near Red Pass, July 23.

***Boreal Chickadee:** Two family groups were seen in muskeg habitat, June 22 and August 9.

Red-breasted Nuthatch: A moderately common species at low elevations.

American Dipper: A Dipper was seen on the Robson River near the nature house, July 19.

****Winter Wren:** Found in the wet cedar-hemlock forest along the Robson River. Two records: June 19 and July 22.

Rock Wren: A pair was seen on the moraine at the toe of the Robson Glacier, July 19. This species is listed as accidental on Jasper National Park bird check-list.

****American Robin:** A fairly common species throughout the park. Seen at timberline July 20. Small flocks were seen on the move in late August.

****Varied Thrush:** Moderately common throughout the park and heard singing in June and early July.

****Hermit Thrush:** A common species in sub-alpine forests. Common at timberline in the Berg Lake area, July 19 to 21.

****Swainson's Thrush**: Common in mixed forests at lower elevations throughout the park.

Townsend's Solitaire: One bird was seen near Robson Meadows, July 2.

Golden-crowned Kinglet: Seen in Spruce groves in the valley but rather scarce.

****Ruby-crowned Kinglet**: Singing June 17 and 18 but not recorded again in the park.

Bohemian Waxwing: Six were seen in a sub-alpine burn west of Berg Lake, July 19 and 21.

****Cedar Waxwing**: A fairly common species. Flocks composed of both adults and juveniles were seen in late August.

****Common Starling**: Small groups were seen at garbage dumps and occasionally elsewhere. Juveniles were seen.

****Red-eyed Vireo**: Common at lower elevations throughout the park.

****Warbling Vireo**: Common in mixed and deciduous forest throughout the valley.

****Tennessee Warbler**: Seen and heard in June and early July. Seen migrating with other warblers in late August. A moderately common species but rather local.

****Orange - crowned Warbler**: Seen during the breeding season, and on migration in late August, but rather scarce.

****Yellow Warbler**: Local. Seen at Red Pass and east end of Moose Lake.

****Magnolia Warbler**: A singing male was present in a small grove of white spruce near Red Pass from July 1 to July 11. A female was seen collecting insect larvae near here, July 10. Two were seen with other warblers, August 29.

***Audubon's Warbler**: Common and evenly distributed in open coniferous woods from valley bottom to timberline. A nest was found near Red Pass 30 feet up a lodgepole pine.

****Townsend's Warbler**: Fairly scarce and local. A total of four records between July 18 and August 29. A singing male seen in white spruce grove near Red Pass in late June.

Blackpoll Warbler: A male was seen in thick black spruce east of Moose Lake, June 22.

****Northern Waterthrush**: Singing males were recorded in June and July near the nature house and at the east end of Moose Lake. One was seen at Red Pass, August 16.

****MacGillivray's Warbler**: Common below the sub-alpine zone throughout the park.

****Common Yellowthroat**: Recorded in the marshes, but not elsewhere, in June and July.

****Wilson's Warbler**: A common species from the valley bottom to the stunted alpine firs at timberline.

****American Redstart**: This was the commonest warbler in mixed and deciduous forests along the valley.

***House Sparrow**: Found only at Red Pass where about a dozen birds nest in the buildings and Cliff Swallow nests.

***Red-winged Blackbird**: There was a small colony in the marshes east of Moose Lake. Juveniles seen in August.

Brewer's Blackbird: This species was seen at Robson Meadows, Red Pass, and at the east end of Moose Lake in June and early July. None seen after mid-July.

***Brown-headed Cowbird**: Females were seen at Red Pass in June. Eight juveniles were seen at Red Pass in late July, roosting in low willows along the river.

****Western Tanager**: Moderately common in coniferous forests throughout the valley.

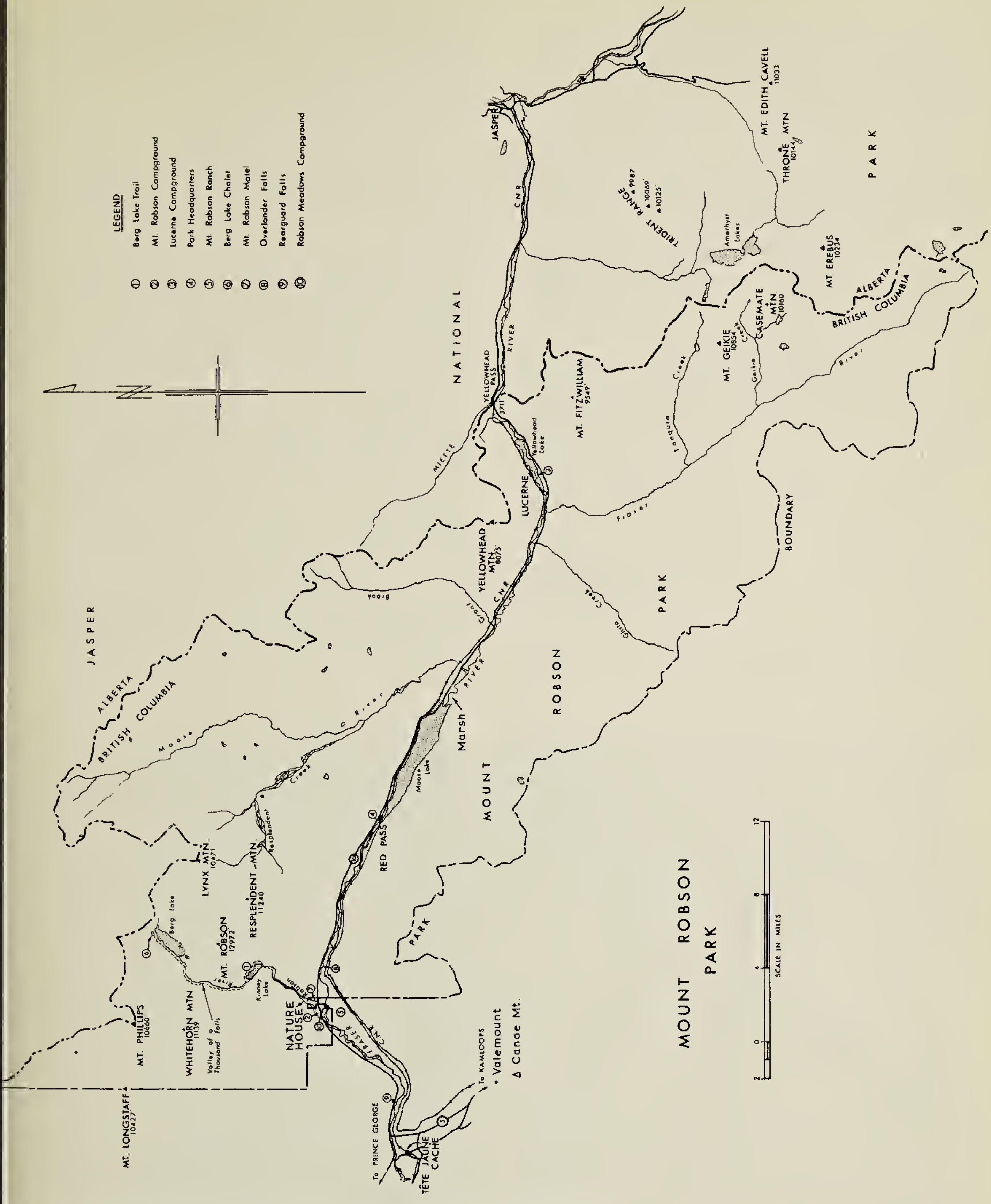
Evening Grosbeak: Heard several times in June and July. A flock of 20 seen in August.

Purple Finch: Seen at close range on the ground twice at Red Pass and once at the east end of Moose Lake.

****Pine Grosbeak**: A pair was seen at Red Pass from June to September. No other sightings.

Pine Siskin: Common, usually in small flocks, throughout the park.

Red Crossbill: Scarce until August when scattered small numbers appeared throughout the park.



Mount Robson Provincial Park, British Columbia

*__Oregon Junco__: Moderately common. A nest with three eggs was found July 10. Young in juvenile plumage were common after mid-July.

*__Chipping Sparrow__: One of the commonest birds in the park. Adults feeding young, July 13. Many young seen in August.

**__White-crowned Sparrow__: Rather local at low elevations but common at timberline, July 20-22.

**__Golden-crowned Sparrow__: Singing males were seen at timberline, July 20.

**__Fox Sparrow__: Several were seen and heard at timberline, July 21.

**__Lincoln's Sparrow__: Singing males were found at Moose Lake and Red Pass in June and July. One was seen at Whitney Lake, August 20.

**__Song Sparrow__: Noticed, usually in pairs, at scattered places along the highway throughout the summer.

Species recorded outside the boundaries of Mt. Robson Provincial Park which might be expected within the Park.

American Bittern: One was seen in July in the marsh at Valemount, 10 miles west of the park. There is suitable habitat for this species at the east end of Moose Lake.

Marsh Hawk: Recorded in August at Valemount. Seen in the Robson area by Riley.

Prairie Falcon: One was seen on Canoe Mt. near Valemount, August 25, and another at Mt. Edith Cavell, Alberta, September 1.

Greater Yellowlegs: This was a common species in the marsh at Valemount in July and August.

Black Tern: A colony of 20 birds at Valemount. Young seen on the wing in late July.

Common Nighthawk: Seen by Riley at Moose and Yellowhead Lakes. This was a comman species in the dry, open forests just beyond the park's western boundary.

Horned Lark: One was seen giving its flight song on Whistler Mountain, Jasper National Park on July 3. A flock of at least 100 was seen on Canoe Mt., near Valemount on August 25 and again on August 31.

Mountain Bluebird: Recorded by Riley. A common species in the Valemount area and in the vicinity of the town of Jasper.

Water Pipit: Recorded as breeding by Riley. I saw no pipits in the alpine areas near Berg Lake but young with parents were seen on Canoe Mt. in July.

Savannah Sparrow: Recorded as breeding by Riley. I saw none in the park but I found pairs and individuals in high country on either side throughout the summer.

Lapland Longspur: The distinctive calls of Lapland Longspurs were heard among the Horned Larks on August 31. After some searching I was able to find four longspurs.

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INFORMATION WANTED ON COLONIAL BIRDS

In Saskatchewan we have 15 species of birds that usually nest in colonies. For several of these species, the colony is essential for successful nesting. Small groups or single pairs usually fail to raise broods.

In the past, colonial nesting must have been advantageous for these birds, but in the face of increasing human pressure, it has placed several species in a very vulnerable position. With species like the White Pelican, Double-crested Cormorant, and Great Blue Heron, each colony represents a significant proportion of the total nesting population. This, coupled with the extreme nervousness of the birds, makes them particularly vulnerable to local catastrophes. A single ill-timed visit by a group of people can have disastrous effects when it leads to chilling of the eggs, predation by marauding gulls, or fatal sunburning of young birds.

Saskatchewan's bird colonies are a very significant percentage of the Canadian total. For example, in 1968, there were 6,600 White Pelican nests in this province, representing 47 per cent of all nests in Canada, according to Kees Vermeer (Distribution and size of colonies of white pelicans. *Pelecanus erythrorhynchos* in Canada. *Can. J. Zool.*, 48:1029-1032). Therefore we have a serious responsibility for protecting these species. In the past this esponsibility has been neglected, and e situation is now becoming critical. mmediate action is required to coun- eract the snowballing trend of nest ilure and colony abandonment.

As a first step, the Saskatchewan useum of Natural History is under- aking an inventory of all bird colonies Saskatchewan, and we are soliciting ssistance from the public. If you now of any nesting colonies of the ecies listed below, we would be most rateful if you would let us know. lease give us all the information you an without disturbing the colonies. ith species other than gulls and erns, it is of utmost importance *not* disturb the colony.

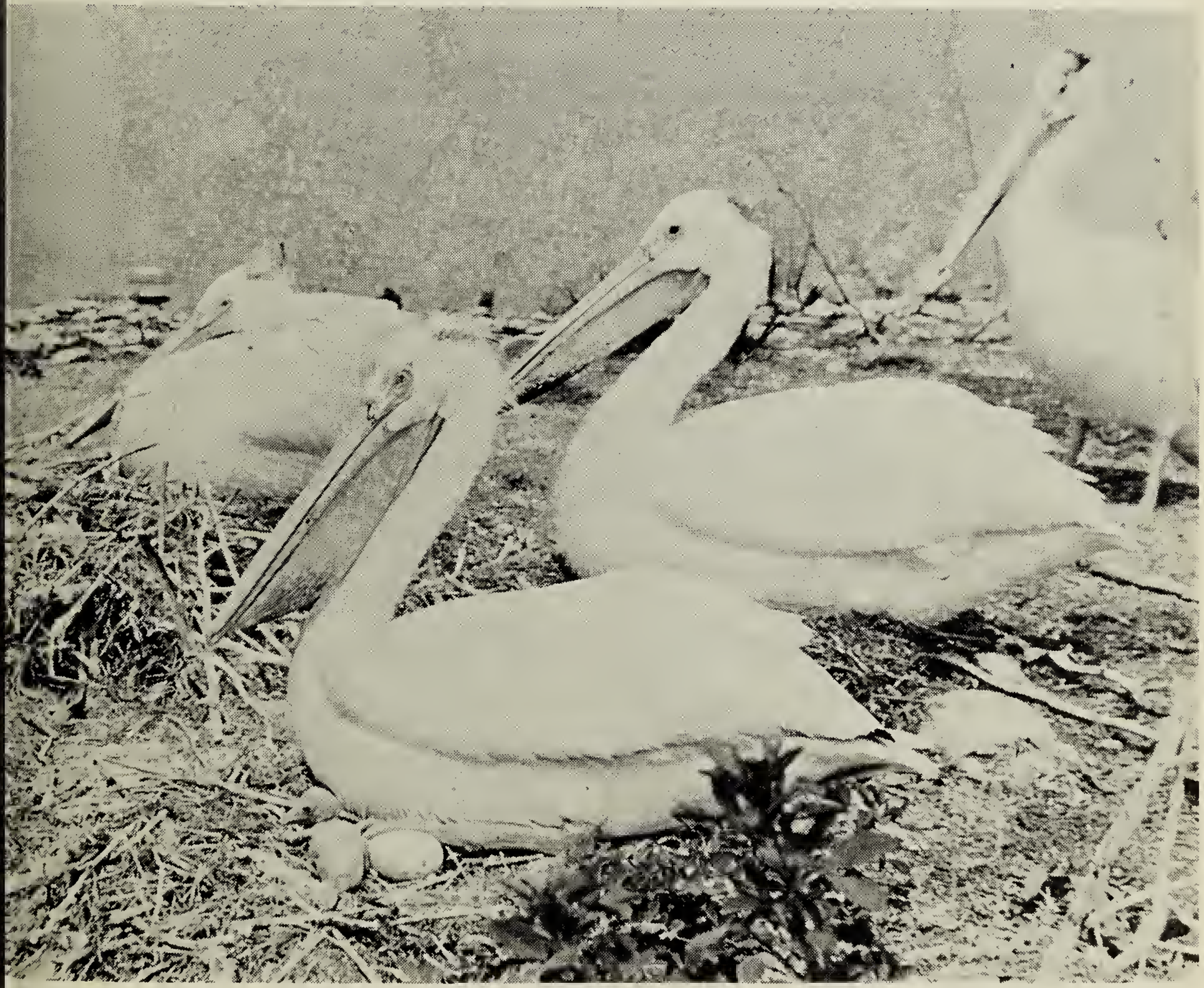
The reports of greatest value are ose that include the names of the pecies in the colony, the exact location f the colonies, and an estimate of e numbers of nests of each species.

Can YOU help us? Write to

Robert J. Long, Museum Assistant,
Saskatchewan Museum of Natural History, Regina.

Species of colonial birds found in Saskatchewan

Western Grebe
Eared Grebe
White Pelican
Double-crested Cormorant
Great Blue Heron
Black-crowned Night Heron
Herring Gull
California Gull
Ring-billed Gull
Mew Gull
Bonaparte's Gull
Arctic Tern
Common Tern
Forster's Tern
Caspian Tern



hite Pelicans

Saskatchewan Museum of Natural History Photo

RECENT SASKATCHEWAN BANDING OF THE DOUBLE-CRESTED CORMORANT

by **C. Stuart Houston,** 863 University Drive, Saskatoon

The Double-crested Cormorant, *Phalacrocorax auritus*, has yielded the highest recovery rate of any non-game species banded in Saskatchewan. From 4838 cormorants banded here through 1969, there have been no fewer than 688 recoveries.

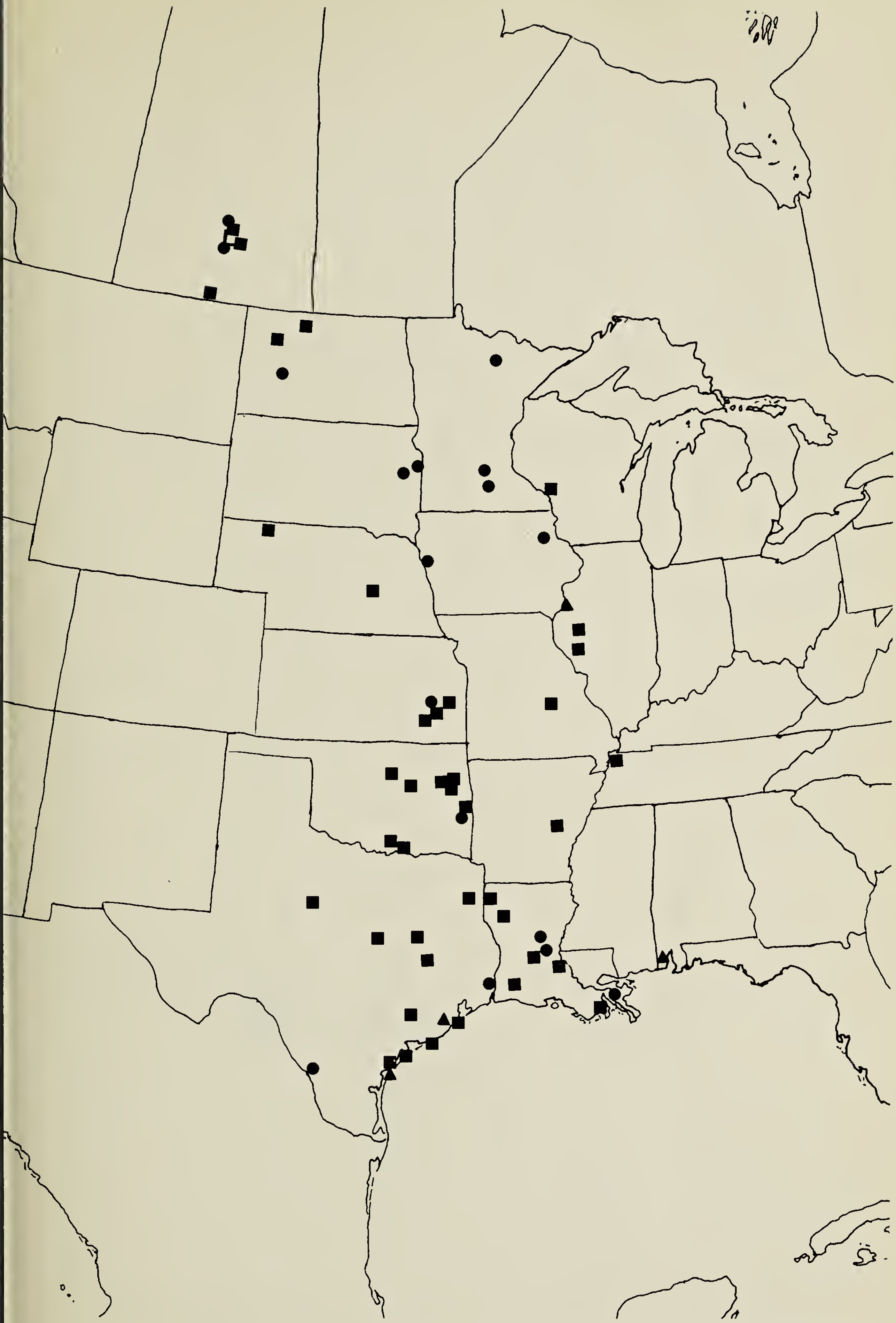
The results of all Saskatchewan cormorant banding through 1949 have already been mapped. These are summarized, together with my own banding herewith reported, in Table 1. Since the publication of the articles about Patrick's and Lyon and McArthur's banding, I have had the opportunity to check Xerox copies of the original banding schedules kindly supplied by the U.S. banding office at Patuxent. The present table represents the corrected figures for the numbers of cormorants banded.

The accompanying maps show the recoveries of all remaining Saskatchewan banding, all of it done by the writer since 1953. Perusal of my mapped recoveries (figs. 1-4) shows interesting and unexpected differences in the areas where birds from different lakes have been recovered. Although the samples are not large, the contrast is rather striking. Cormorants from Dore Lake flew south along the Mississippi River valley, while only about one-third of the Last Mountain birds travelled that far east. Cormorants from the other three lakes stayed well west of the Mississippi except for single Quill Lake and Redberry Lake birds that strayed east into Alabama the following spring, and in the third winter, respectively. It strengthens the hypothesis that Crane Lake cormorants keep further to the south and west when it is noted that five of 17 Crane Lake recoveries were from the Rio Grande valley, including one cormorant caught in a fish net on the Mexican side at Guerrero, Tamaulipas. The 671 recoveries from the other lakes included none at all from the Rio Grande and only one south of it, a Quill Lake bird killed in a fish net at Don Martin dam, Coahuila, Mexico.

On the other hand, the present results are considerably different from those of earlier years, so time also plays a part. The Quill Lake cormorants of the 1930's tended to migrate almost exclusively along the Mississippi, a more easterly route than that taken by later birds. Proportionately more of the Redberry Lake cormorants in the mid-1930's moved along the Mississippi valley than has been the case since 1955. Last Mountain cormorants prior to 1932 migrated predominantly through Missouri-Arkansas-Louisiana, whereas since 1953 their route has been through Kansas - Oklahoma - Texas, one full state width or more than 300 miles to the west. Earlier Illinois reports record

Table 1. Recoveries of Saskatchewan-banded Cormorants.

Bander	Lake	Years	Banded	Recov.	% Recov
R. & A. C. Lloyd	Last Mountain	1923-28	246	43	17.5%
J. A. M. Patrick	Quill (Big, Little)	1930-32	615	81	13.2%
Fred G. Bard	Big Quill	1931-37	489	81	16.6%
Fred G. Bard	Last Mountain	1934-49	1548	282	18.2%
Lyon & McArthur	Redberry	1936-37	153	29	19.0%
C. S. Houston	Last Mountain	1953-56	503	61	12.1%
"	Dore	1956	356	29	8.2%
"	Little Quill	1956-57	119	14	11.8%
"	Crane	1960-61	312	17	5.5%
"	Redberry	1955-69	430	31	7.2%
			4838	688	14.3%



ig. 1. Recoveries of Double-crested Cormorants banded at Last Mountain Lake L) by C. Stuart Houston, 1953, 1954, 1955, 1956. Note: squares represent direct ecoveries (same year); triangles, January 1 to June 30 of following year; ircles, more than one year old.

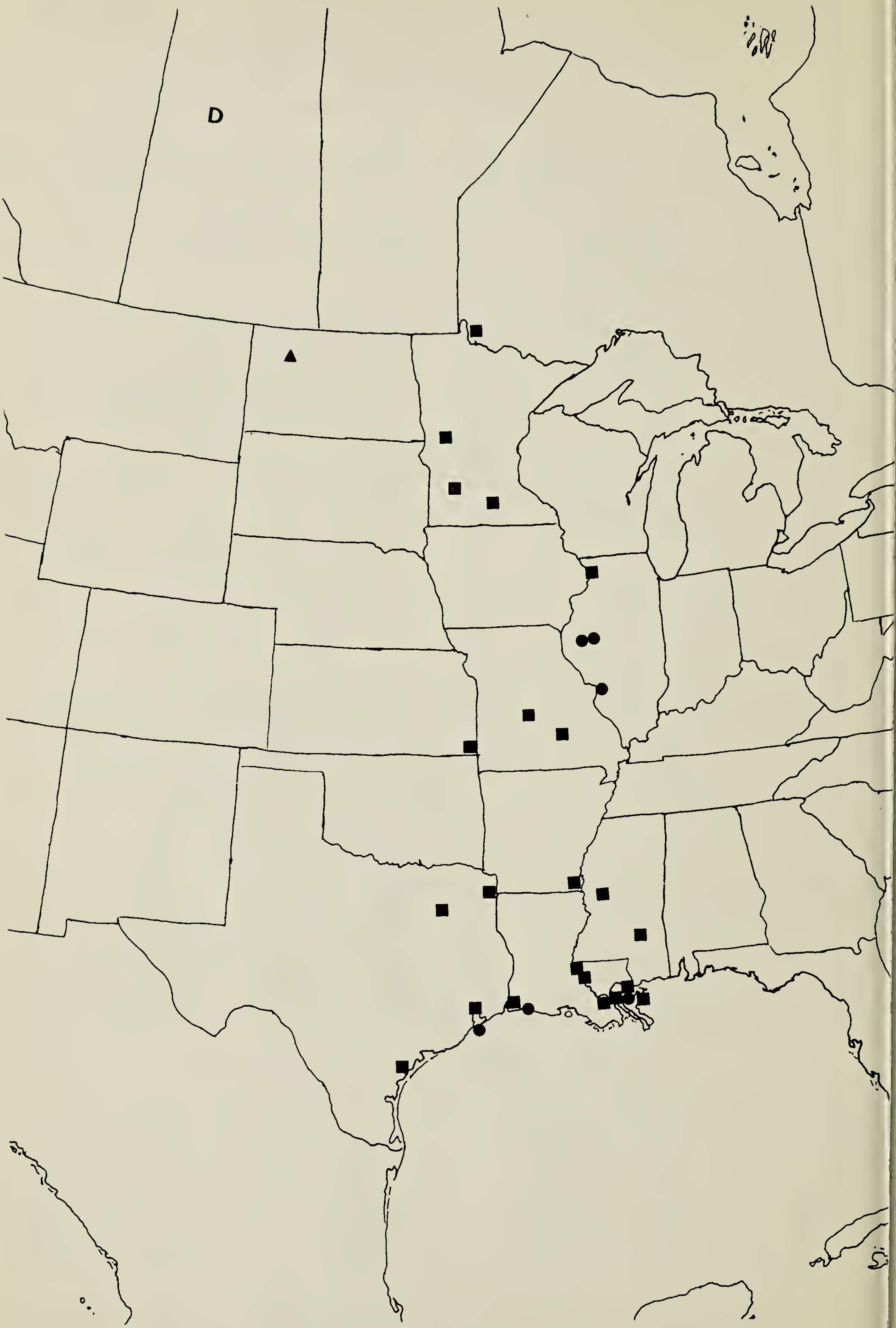


Fig. 2. Recoveries of Double-crested Cormorants banded at Dore Lake (D) b
C. Stuart Houston, 1956. Note: squares represent direct recoveries (same year)
triangles, January 1 to June 30 of following year; circles, more than one year ol

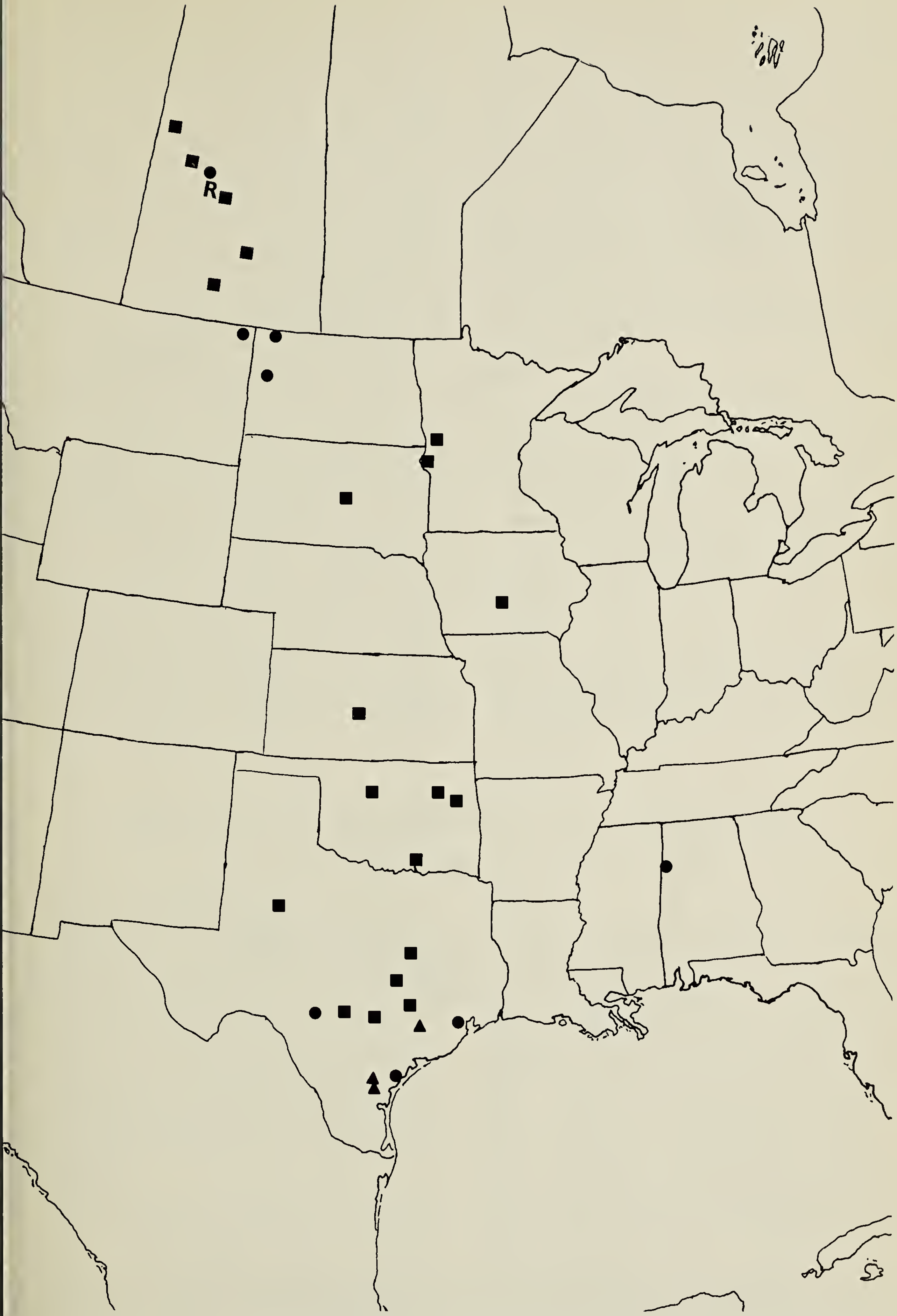


Fig. 3. Recoveries of Double-crested Cormorants banded at Redberry Lake (R) by C. Stuart Houston, 1955, 1956, 1958, 1961, 1963, 1964, 1965, 1966, 1967, 1968, 1969. Note: squares represent direct recoveries (same year); triangles, January 1 to June 30 of following year; circles, more than one year old.

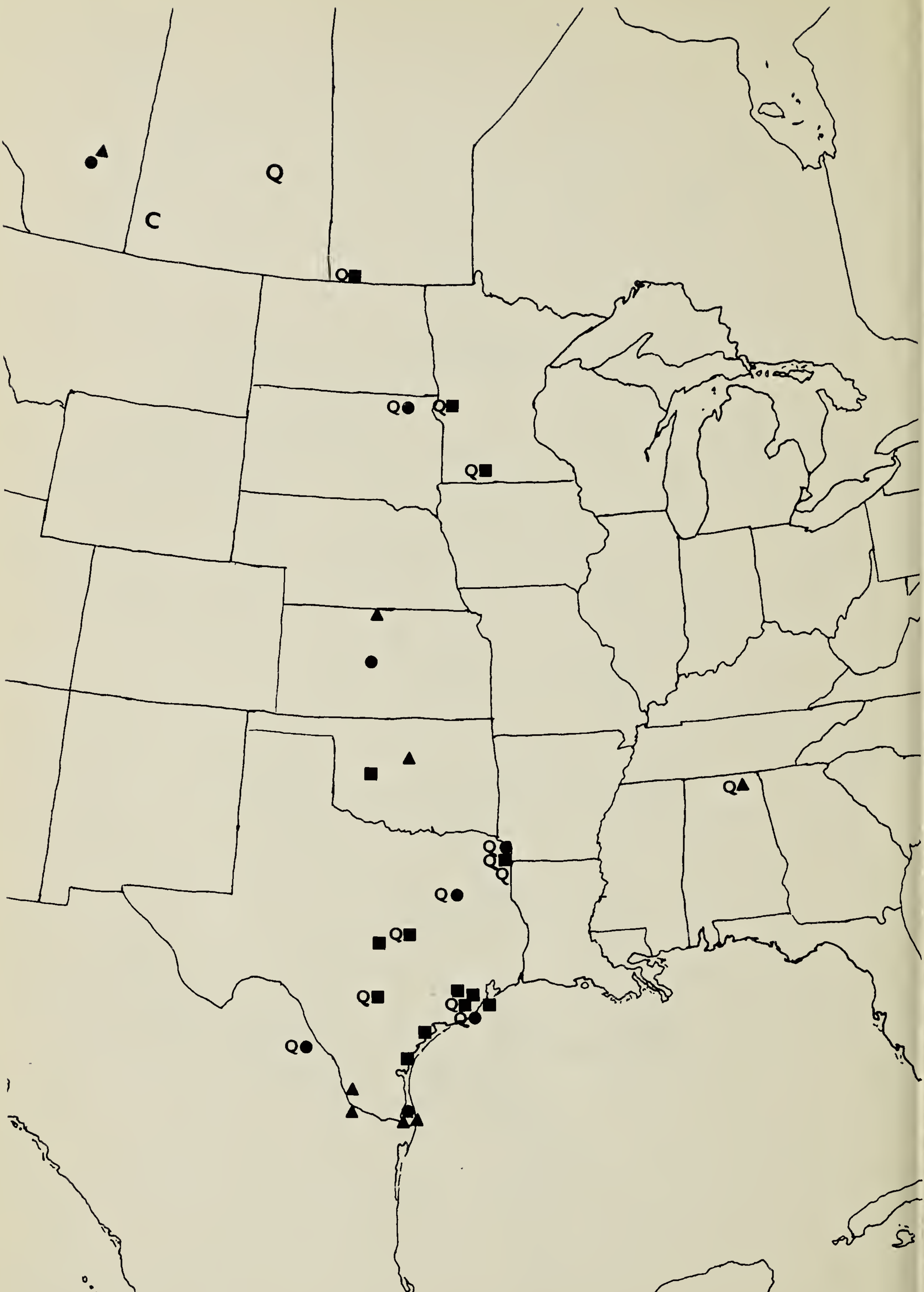


Fig. 4. Recoveries of Double-crested Cormorants banded at Crane Lake (C) by C. Stuart Houston, 1960, 1961 and at Little Quill Lake, 1956, 1957. Note: squares represent direct recoveries (same year); triangles, January 1 to June 30 of following year; circles, more than one year old. Unmarked squares, triangles and circles indicate Crane Lake birds, whereas a small Q to the left of one of these symbols indicates a Quill Lake bird.

familiar with the species, having seen more cormorant recoveries from all these Saskatchewan lakes than they do today, thereby substantiating the rapid decline in the numbers of cormorants visiting the Illinois valley after 1950 (Mills, Starrett and Bellrose, 1966).

It is therefore likely that the differences among the four maps reproduced here may be due not only to a difference in the lake of origin, but to changes with time; my banding at lakes from which cormorants moved east to the Mississippi was before 1957, and the Crane and Redberry Lakes banding largely since then.

The gradual decline in the percentage of recoveries over the years seems due partially to decreased shooting pressures on this "non-game species." For birds banded before 1830, the percentage of recovered birds reported as "shot" was 80% (70/87), whereas for those banded since 1960 it has been only 27% (12/33). From the maps, one sees that a smaller proportion are now killed in their southward passage, while a relatively larger percentage are recovered on their wintering grounds in Texas. Since band recoveries result only from an interaction between birds and humans, it may be that as cormorants now migrate further west through areas of lesser human population density, they are less likely to be shot or found dead. The problem is further aggravated by an apparent increase in public apathy resulting in fewer bands being reported.

Acknowledgment: I wish to thank J. B. Gollop, of the Canadian Wildlife Service, Saskatoon, for advice and criticism.

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BARROW'S GOLDENEYE IN MANITOBA

by **David R. M. Hatch,** Oak Lake, Manitoba

Manitoba is situated midway between the two major breeding areas in North America of Barrow's Goldeneye *(Bucephala islandica)*, yet there have been only a few sight records of the species in this province and no specimens have been confirmed as collected in Manitoba. To help substantiate the occurrence of this species in Manitoba, all available records are presented in this article.

According to Godfrey (1966:71), Barrow's Goldeneye breeds "in widely separated areas: from southern Alaska and southern Yukon south to eastern Washington and California . . . also in Labrador, southwestern Greenland, and Iceland", but no reference is made to its presence in Manitoba. The A.O.U. *Check-list* (1957) also omits reference to its occurrence in Manitoba. In a review of Barrow's Goldeneye in Saskatchewan, Nero (1965: 127) indicated that the species may have been overlooked on the eastern prairies. Two "possible records" of Barrow's Goldeneye in Saskatchewan were cited. Both were of adult males: one observed on April 6, 1956, at Morse by John M. Nelson and one shot on October 12, 1964, on Pasqua Lake in the Qu'Appelle River system by Jamie Young. There is no correlation of these reports with the Manitoba records.

Godfrey did not accept the records (pers. corres. to R. W. Nero, April 14, 1967) ascribed to R. H. Hunter by Seton (1886:328) and Thompson (1891:483). Hunter's records from the latter source stated: "I shot a brace on Lake Manitoba in 1879, and a drake at Shoal Lake in the spring of the following year; and I saw a drake which was killed at the mouth of the Red River . . . ." Godfrey also did not accept Nutting's record (1893:20) which follows: "Two immature females secured, which must be referred to this species, although the bills are considerably smaller than the descriptions of adult birds would indicate."

The first record of Barrow's Goldeneye in Manitoba in this century was of a male seen May 14, 1936, at East Bay, a village on the east side of Dauphin Lake and situated 12 miles south and two miles east of Rorketon. The bird was identified by Ed Robinson, then a resident of East Bay and a prominent amateur ornithologist in the province during the 1930's (Mossop, 1960:281; 1962:386). This record was originally accepted by A. G. Lawrence, who quoted Robinson as saying "the crescent-shaped white marking on the forehead was unmistakably noted" (Lawrence, 1936:798).

The species was not reported again until the 1960's when there were six confirmed sight records and one unconfirmed observation. On May 21, 1960, a pair was seen on a large slough near Stonewall by Ken Garner. His detailed account (pers. corres.) follows:

"Windfield Swamp, one mile southeast of the town of Stonewall, is bordered mainly by willows with some poplars and oaks as well as a few lesser trees and bushes. Cultivated fields and pastures form part of the border also. Other vegetation, such as marsh grasses and reeds, is quite sparse. In extremely wet years, there is about 20 acres of land under water, as was the case on May 21, 1960, when I made one of my many visits to the area. There were large numbers of waterfowl present and as I was trying to identify them with the aid of my 7x50 binoculars I came across a pair of goldeneye ducks swimming about 75 yards out. I thought this a little unusual as most Common Goldeneyes have passed through this area by this time. Both birds were sleeping with their heads under their wings and the first thing that caught my eye was that the drake showed less white on its upper sides than other goldeneyes I had seen. I arose from my hiding spot in the willows and this movement alarmed some of the other ducks present; both goldeneyes then lifted their heads to look around. After a few minutes of careful scrutiny, I was able to see plainly the white crescent-shaped spot between the eye and bill of the drake. The heads of both birds appeared to have a different shape than the Common Goldeneye, but at that range I could not be sure. The hen could not be positively identified . . . but as the drake was definitely a Barrow's Goldeneye I believe it would be quite safe to assume the hen was also of this species. They were well aware of my presence by this time and were beginning to swim farther out. I tried to work my way closer through the willows but they took flight heading straight to the northwest, gaining altitude as they went and were soon out of sight. Other waterfowl present at the time on the water were Mallard, American Widgeon, Pintail, Green-winged Teal, Blue-winged Teal, Redhead, Lesser Scaup, Ruddy Duck, Eared Grebe, and American Coot. The Barrow's Goldeneye, however, kept to themselves while the other species intermingled . . . ."

Only two days later, May 23, 1960, a male was identified by members of the Manitoba Natural History Society and verification made by David and Harold Mossop. This bird was also accompanied by a female, which "was quite likely his mate" but positive identification of the female was not confirmed (Mossop, 1960: 280; 1962: 386). The observation was made at Victoria Beach, where the pair was swimming offshore in Lake Winnipeg.

The next report of the species in the province was again by Ken Gardner, who described this sighting as follows:

"While motoring to Grand Rapids on May 19, 1962, we passed one of the many small ponds along the highway (No. 6) a few miles south of the town

(For June/71 "The Blue Jay")

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M'CLURE, CAPT. R.: THE DISCOVERY OF THE NORTHWEST PASSAGE BY HMS INVESTIGATO 1850-1854, edited by Commander S. Osborn, $5.95. 405 pp., 4 illus. map. First published London 1856. A first-hand account of the historic voyag of discovery of HMS Investigator and her colourful, controversial captai Robert M'Clure. A most timely reprint.

McCOURT, EDWARD: THE CANADIAN WEST IN FICTION, $2.75 paper. A stimulating analysis of the prairie provinces and the novelists they have produced and influenced.

MacKENZIE, SIR ALEXANDER: EXPLORING THE NORTHWEST TERRITORY: Journal of a Voyage by Bark Canoe from Lake Athabasca to the Pacific Ocean, 1789. (T. H. MacDonald, Ed.), $5.95. A vital chapter in Canada's history is unfolded in this story of an epic journey to the Arctic Ocean and back.

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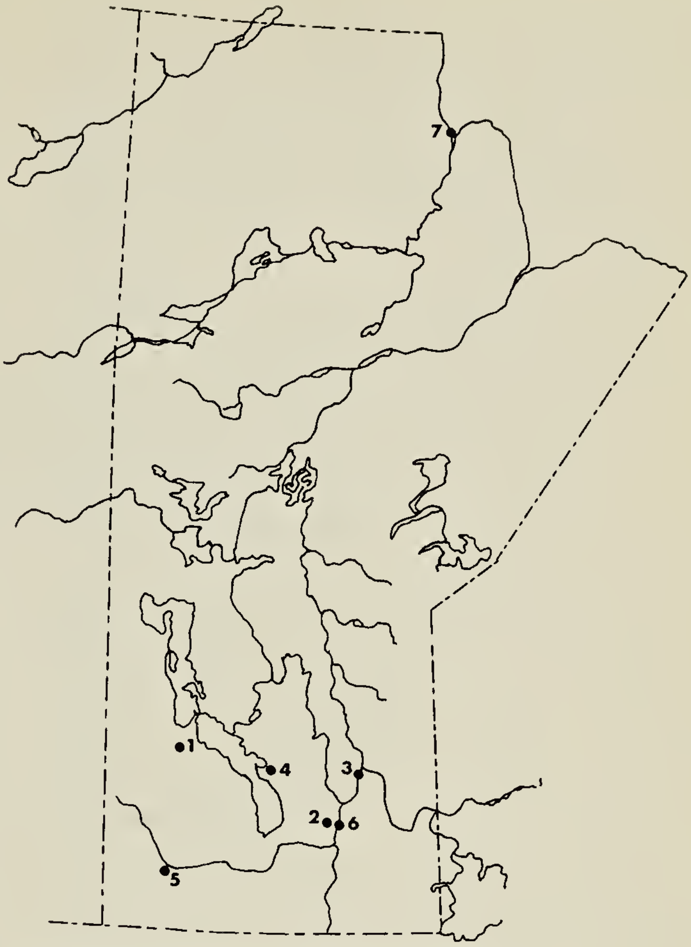
PARSONS, NELL W.: UPON A SAGEBRUSH HARP, $5.95, 144 pp., hard. The Wilson family came from Iowa to Saskatchewan in 1907. The story of their struggles is told by the author who was a small girl at the time.

PATERSON, RUTH & JACK: THE CRANBERRY PORTAGE, $6.95. This is the authors' story of a new settlement midway between Flin Flon and The Pas, how the groped and grew with other Cranberry squatters, and how it built lives.

REID, HELEN E.: ALL SILENT, ALL DAMNED, $6.95. The search for Isaac Barr. In 1903 the 2,000 English immigrants under Rev. Isaac Barr, came to Saskatchewan to found a group colony. Contrary to the accepted version of the "swindle", the author tells quite a different story which she has pieced together.

f Eriksdale. On this particular pond, spotted a pair of goldeneye ducks hat didn't look like the expected pecies so I had the driver back up. 'hese birds were about 30 yards away t the most and all identifying feaures of Barrow's Goldeneyes were een on both male and female: male — esser amount of white on the upper ides than the Common, white crescent-haped spot between eye and bill, foreead abrupt at bill and crown not as igh as the Common, small bill; emale - head shaped similarly to the nale but not quite as pronounced, mall bill; bill was all yellow but pparently this is not always a safe eparating feature from the female 'ommon. We studied them for about ve minutes and they were still there vhen we left; on our return trip on lay 21, I checked the pond but they vere not there. There were three other eople with me but unfortunately they vere not bird watchers." Shortt 1962) drew special attention to this ecord in his year-end report.



Sight records of Barrow's Goldeneye as listed in Table 1

The fifth record was a male seen by ie at Oak Lake on April 30, 1966. A arge marsh, locally known as "Bigeow's Slough", bordering the east edge f Oak Lake, is separated from the ake by a dike. From a road on top f this dike immediately south of the Island Resort", the goldeneye was potted in a mixed group of Lesser caup, Redhead, and Canvasback restng approximately 40 yards away. Jsing 7x50 binoculars, I studied it or about 10 minutes. I had previously een this species in Banff National 'ark and was aware that it was an nusual record for Manitoba. The arge, white crescent between the eye and the bill was distinct. The white on this duck's sides extended only partly up the bird's sides, unlike the Common Goldeneye which shows more white on the sides when sitting on the water because it exhibits far more white in the forewing. The upper part of the sides appeared dark and this was the first thing that drew my attention to the bird.

On April 12, 1967, a male was reported at Reston by David Braddell, but without a confirming description (Mossop, 1967: 644).

Mrs. Grace Keith of Winnipeg reported seeing a male on the Red River near Lockport on May 18, 1967. She is

'able 1. Sight records of Barrow's Goldeneye in Manitoba.

Observation Number	Date	Location	Observers
1.	May 14, 1936	East Bay	Robinson
2.	May 21, 1960	Stonewall	Gardner
3.	May 23, 1960	Victoria Beach	Mossop & M.N.H.S.
4.	May 19, 1962	Eriksdale	Gardner
5.	April 30, 1966	Oak Lake	Hatch
6.	May 18, 1967	Lockport	Keith
7.	June 29, 1968	Churchill	Tremaine & Comer

it frequently in British Columbia and she was "quite satisfied" that the bird was a Barrow's Goldeneye. She noted its crescent-shaped, white face patch and larger appearing head in comparison with the Common Goldeneye (pers. comm., 1969).

The latest sighting of a Barrow's Goldeneye was of a male in a cove off Hudson Bay at Churchill on June 29, 1968. The observation was made by Dr. Mary M. Tremaine and C. W. Cromer. On the basis of this record, it is considered "accidental" at Churchill (Jehl and Smith, 1970). Dr. Tremaine wrote of the incident (pers. corres. to R. W. Nero): "On June 29, (1968), — a blustery, cold, stormy day — I saw a Barrow's Goldeneye and a Common Goldeneye in a small open bay area . . . which offered some protection. They were feeding and loafing together. Both birds showed beginning molt. C. W. Comer (of Kansas, U.S.A.) saw these too. We watched them for almost an hour. They were too far out for a picture. The opportunity to compare the back and flank plumage, as well as the heads, was wonderful . . . ." The study verified my previous impression that the best way to spot a Barrow's is a goldeneye that is dark from the distance . . . The back and flank plumage seemed more distinctly different in these two birds and a better mark than the head spot. These birds were gone the next day and not seen again."

To the south of the province of Manitoba, in Minnesota, there have been a score of published sightings of the Barrow's Goldeneye in this century, but many of these lack details. There is no correlation between the Manitoba records and the Minnesota observations since the bulk of the Minnesota reports occurred in December, January, February, and March. All seven Manitoba records fall between April 30 and June 29, inclusive. In fact, six of them fall between April 30 and May 23, a period of less than four weeks, and appear to represent spring migrants.

The seven confirmed Manitoba sight records are widely distributed, with six in the populated southern quarter of the province and one in the far north. All were single observations and although most locations were visited on subsequent days the birds were never seen again. In Minnesota, where many of the sightings were of wintering birds, it was common to observe Barrow's Goldeneye on more than one day in the same locality and the species appeared on three of four Christmas censuses in St. Paul between 1965 and 1968 inclusive (Glassel, 1966:81 and 1967:141); Janssen, 1969:124).

Table 1 lists seven sightings for which verifying details are available. The locations of these records are shown on the map. On the basis of these records, Barrow's Goldeneye should be considered of irregular occurrence as a visitant in Manitoba. Further verification by a photograph or specimen would be desirable.

I would like to thank Martin K. McNicholl and Dr. Robert W. Nero for their assistance in collecting the data for this article; a special thanks goes to the latter for his critical analysis of the manuscript. I also want to thank Ken Gardner and Mrs. Grace Keith for the use of their records.

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SOME 1970 SOUTHERN ALBERTA BIRD OBSERVATIONS

by **Wayne W. Smith** and **Cleve R. Wershler,** Calgary, Alberta

The purpose of this article is to record some interesting observations made in the Calgary area, a circle with its centre in downtown Calgary and a radius of 50 miles. For an observation made outside this area the nearest large town is given. The terms common, rare, etc., are used as in the *Check-list of the birds of the Calgary region*, 1969 edition. On a few occasions, one or more of the following people were in the field with us—Stu Alexander, Don Brookes, Bob Owens, Harry Pinel, Connie Sweet, Merril Wershler, Chip Weseloh. Unless otherwise noted, all observations were made in the presence of at least one of the authors.

During the fall migration, fewer species of vireos, warblers and other passerines appeared, and of those that did there were fewer numbers.

Common Loon *(Gavia immer)*: One, possibly two, on Frank Lake, June 8. One pair on Little Fish Lake (about 23 miles ESE of Drumheller) until June 1 (when the observers left). This pair was observed in courtship flight over the dry prairie just southeast of this prairie lake. Loons have not yet been discovered nesting on the prairie, although there have been several summer records in the past few years.

Red-necked Grebe *(Podiceps grisegena)*: Several pairs nested on a large slough just north of Turner Valley. Although, according to published data, this species nests only rarely in the foothills and mountains, it may be a regular foothills breeder.

White Pelican *(Pelecanus erythrorhynchos)*: About 75 at Irricana Lake on the evening of May 31, with 25 still present at 4:30 a.m. on June 1 (Chip Weseloh only). One on Namaka Lake, June 29. Up to 14 recorded several times between June 27 and July 10 at Little Fish Lake (ESE of Drumheller). This species is now only a scarce visitor in our area.

Trumpeter Swan *(Olor buccinator)*: One pair on Irricana Lake, April 29. One pair on Glenmore Reservoir (Calgary), June 9 and 10. One pair on Bow River in NW Calgary, October 7 and 8. Considered a rare migrant in our area. Archie Hogg has reported a pair nesting near Longview (about 35 miles SW of Calgary) in 1968 and 1969, and two young were raised to flying stage in 1969.

Cinnamon Teal *(Anas cyanoptera)*: One pair near Shepard, May 8. Fifteen (five pairs, four males, one female) on Priddis Slough, May 9. Five pairs on Frank Lake, June 8. This is a repetition of the greater numbers appearing in recent years, such as in 1968.

Wood Duck *(Aix sponsa)*: One male in southeast Calgary during the late summer. There was an apparent increase during the five years up to 1968, with breeding occurring at several locations. However, there have been few sightings for the past two years.

Greater Scaup *(Aythya marila)*: One adult male at Calgary (Inglewood), April 17. A close and careful study was made, with three competent observers noting all field marks. This is the second sighting for the Calgary area.

Surf Scoter *(Melanitta perspicillata)*: On Glenmore Reservoir (Calgary) 40+ on September 14, and one female on October 3.

Hooded Merganser *(Lophodytes cucullatus)*: One pair near Chepard, May 14 and 15. Two immatures in Inglewood (Calgary), August 23.

Cooper's Hawk *(Accipiter cooperii)*: One adult flushed and chased by Magpies in Bowness Park (Calgary), November 29. Although this species winters in Edmonton, this is the first winter record for the Calgary area.

Harlan's Hawk *(Buteo harlandi)*: Eleven (12?) dark-phase hawks at Fish Creek (Calgary), October 11. This raptor is a scarce migrant in our area; however, this day was exceptionally good: e.g., one Red-tail, seven Harlan's and two Golden Eagles passed over within one 10-minute period.

Golden Eagle *(Aquila chrysaetos)*: Five in the Grande Valley - Bighill Springs area, February 25. This is the earliest date yet for Golden Eagles to be migrating into or through our area. However, spring migration is correlated with the emergence of Richardson's Ground Squirrels, and, owing to unseasonably warm weather "gophers" appeared on February 25 in 1970.

Gyrfalcon *(Falco rusticolus)*: One grey phase at Lake Louise dump, August 16; an unusual record in terms of both date and its mountain location.

Sparrow Hawk *(Falco apaverius)*: One male up the Grande Valley, January 2. Sparrow Hawks are not generally believed to winter in Alberta.

Long-billed Curlew *(Numenius americana)*: One at Irricana Lake, April 15, plaintively crying as it flew *south* over the still frozen land and water. Owing to the cold weather, no other Curlews were reported for another three weeks.

Knot *(Calidris canutus)*: One (still in breeding plumage) at Janet Slough, August 9 (a rare migrant in our area).

White-rumped Sandpiper *(Erolia fuscicollis)*: One at Miquelon Lake (SE of Edmonton), May 16 (an infrequent migrant in Alberta).

Dunlin *(Erolia alpina)*: One at Conrich in early May. One at Beaverhills Lake (east of Edmonton), May 17. A 1969 record for Calgary is also in the spring — three on May 3. According to Salt and Wilks' *Birds of Alberta*, the Dunlin is mainly a fall migrant, and is quite scarce.

Marbled Godwit *(Limosa fedoa)*: An unusually large flock of 230+ flew into Irricana Lake from the southeast, July 3.

Hudsonian Godwit *(Limosa haemastica)*: One near Shepard, May 8 (a rare migrant).

American Avocet *(Recurvirostra americana*: A flock of 155+ at Janet Slough, July 29, and a flock of 109+ at the same place, July 30. On both days, an individual with deep, rich chestnut colour from the upper breast to the under tail coverts was seen. It is not known whether this colour was due to a genetic aberration or staining.

Snowy Owl *(Nyctea scandiaca)*: In spite of intensive field work, the first Snowy Owl was not recorded until the late date of December 2 — a dark bird at Twin Bridges. By the end of December, only three Snowies had been seen, an unusually low number.

Great Gray Owl *(Strix nebulosa)*: One male calling five miles east of Leduc (south of Edmonton), May 15; this is some distance east and south of its normal Alberta range.

Short-eared Owl *(Asio flammeus)*: Only two were seen in the early part of the winter, December 2 and 3. In the last few years Short-ears were regular but uncommon in the winter. Voles were very scarce this winter.

[Chimney Swift *(Chaetura pelagica)*]: One flying west with Tree Swallows at dawn over the shore of Miquelon Lake (Southeast of Edmonton), May 15. A good comparison with the Swallows as obtained with respect to colour, size and flight. W. W. Smith, the observer, is familiar with all four species of North American swifts.

Black-backed Three-toed Woodpecker *(Picoides arcticus)*: One female near Lost Lake (35 miles northwest of Calgary), January 10. Not often seen, and then usually in dense coniferous woods.

Yellow-bellied Flycatcher *(Empidonax flaviventris)*: Two singing males, apparently on territory, in mixed woods next to a beaver pond 45 miles southwest of Calgary, June 19, provide us with the first record for the Calgary area. This valley is unique in that it now appears to have all six species of Alberta *Empidonax* flycatchers breeding in it. A second Calgary area record is of one at Glenmore Reservoir, August 19.

Purple Martin *(Progne subis)*: One female southwest of Calgary, May 23. Several individuals were seen in other parts of the city investigating bird houses. With some attention this migrant might be persuaded to nest in our area.

White-breasted Nuthatch *(Sitta carolinensis)*: One male in Inglewood (Calgary), September 6, was the only record. Usually 6-7 have wintered in the city in recent years.

Winter Wren *(Troglodytes troglodytes)*: Two in Inglewood (Calgary), September 1, and one on September 2. This wren is a scarce migrant in our area.

Robin *(Turdus migratorius)*: One male in Strathmore, December 29.

Sprague's Pipit *(Anthus spragueii)*: Observed in six places in the immediate Calgary area from late spring to late summer; all birds appeared to be nesting. This is unusual as only two of these locations contained anything close to natural prairie and Sprague's Pipits have not bred close to Calgary for at least 10 years.

Cedar Waxwing *(Bombycilla cedrorum)*: A flock of 18 was seen in Strathmore, December 30, 1970; also reports of small wintering flocks in two other areas. This is the second year that Cedar Waxwings have wintered.

Cape May Warbler *(Dendroica tigrina)*: One in Inglewood (Calgary), August 24. A very scare migrant.

Townsend's Warbler *(Dendroica townsendi)*: Five in Inglewood (Calgary), September 6. This uncommon migrant is usually seen on 6-10 occasions during any one fall. However, this was the only date on which it was seen in 1970.

Black-throated Green Warbler *(Dendroica virens)*: Two in Inglewood (Calgary), September 6. This scarce migrant is usually seen on 5-10 occasions during any one fall. As with the preceding species, this was the only date on which it was seen in 1970.

Canada Warbler *(Wilsonia canadensis)*: One adult in Inglewood (Calgary), August 21, 22, and 27.

Black-headed Grosbeak *(Pheucticus melanocephalus)*: One female in Inglewood (Calgary), August 25, 27. This species used to nest as far north as the southern part of the area (early 1900's), but later it retreated to the southern portion of the province. Then in 1967 several were seen in Calgary in the latter part of August. In 1968, three were seen in Calgary, again in August. There were no 1969 records. It is open to speculation why this species has occurred in Calgary in August for three out of the past four years.

Purple Finch *(Carpodacus purpureus)*: One male singing 30 miles northwest of Calgary, July 26, its actions suggesting that it was a resident. This is the first summer record for the area.

Common Redpoll *(Acanthis hornemanni)* and Hoary Redpoll *(A. flammea)*: Three redpolls near Bragg Creek, November 1, and an observation of several in a Calgary backyard were the only reports up to the end of December, 1970.

Pine Siskin *(Spinus pinus)*: This year only a few were seen. Red and White-winged Crossbills and Pine and Evening Grosbeaks were also almost completely absent during the fall and early winter of 1970-71.

American Goldfinch *(Spinus trisis)*: Two near Bragg Creek, October 29, were a month later than usual.

Whitethroated Sparrow *(Zonotrichia albicollis)*: One adult on the University of Calgary campus, January 21; this is our first winter record.

PHOTOGRAPHING TURKEY VULTURES AT MADGE LAKE

by **Robert J. Long,** Saskatchewan Museum of Natural History, Regina

Stuart Houston has recently recently reviewed the records of Turkey Vulture nests in Saskatchewan, which date back to 1893 and include, as the most recent of twelve known nests, one located near the U.S. border southwest of Regina in 1965 (*Blue Jay*, 27:37-39, 1969). Dr. Houston's report thus helps to fill in the gap in knowledge of the distribution of this species in Saskatchewan, for which Godfrey could give no definite indication in *The birds of Canada* (1966).

As early as 1942 Turkey Vulures were looked upon as an interesting feature of the wildlife of Madge Lake in Duck Mountain Provincial Park. They apparently nested on an island in Madge Lake in 1942, and they were reported as numerous as late as 1945 when as many as 30 could be seen soaring over the lake (Houston, *op. cit.*, p. 38). They are still relatively abundant there, and I had some excellent opportunities to photograph them on visits made to the park in July and August of 1970. During those two months I was able to locate vultures almost daily in the vicinity of the refuse pits. On several occasions I counted 18 birds and once there were 24 present. They were usually perched in the trees around the dumps, or soaring overhead, but occasionally they were surprised on the ground, feeding. Generally they took flight more readily than the California and Ring-billed gulls, but were not as alert as the Ravens. On most evenings they congregated high in the trees a short distance from the clearing around the pits to roost for the night. On cold or damp mornings they could frequently be seen perched with wings outstretched, presumably to catch the warmth of the morning sun. They

Turkey Vulture with wings outstretched

Turkey Vulture above Madge Lake, 1970

occasionally assumed this posture at other times of the day as well. Periodically they would disappear for several days but I was not able to determine where they went during these times.

The presence of so many Vultures in the Duck Mountain Park suggested breeding, but neither Fred Lahrman nor I could find any nests in the summer of 1970 on the islands in Madge Lake where the 1942 nest was reported.

Turkey Vulture

Photos by Robert J. Long

LARGE AMERICAN AVOCET CLUTCHES AT DOWLING LAKE, ALBERTA

by **Kees Vermeer,** Canadian Wildlife Service, Edmonton

On June 15, 1967 and on June 9, 1970 I visited a small bare sand reef in Dowling Lake (51°44′N; 112°00′ W), which measured 0.15 acres in 1970. American Avocets (*Recurvirostra americana*) were nesting on the reef on both dates. The reef contained 17 and 13 Avocet nests in 1967 and 1970 respectively. In 1970 there was also one Piping Plover nest and six Common Tern nests. No Avocets were observed nesting on the reef during a visit in June, 1968. Their absence may possibly be explained by the fact that Dowling Lake was then almost completely dry, the reef being connected to the mainland by an extensive mud flat.

The distances between the rims of adjacent nests were measured to the nearest inch. The nesting distance ranged from 7′9″ to 22′4″, the mean distance being 11′5″. The nesting density in 1970 was 13 nests/0.15 acres or 86.6 nests per acre.

As half of the 30 nests observed in 1967 and 1970 contained more than four eggs (Table 1), it is possible that those clutches were the result of more than one female laying in the same nest. F. L. Farley reports (p. 34, *Birds of the Battle River Region*, Institute of Applied Arts Ltd., Edmonton, 1932) "On May 24th, 1924, I found a colony of these handsome waders nesting on a small island in Bittern Lake. The 'community spirit' idea was quite in evidence in the colony, as four nests only were serving the needs of eight pairs. Two of the nests contained eight eggs each, one held seven, while the fourth nest had six eggs. As four eggs is the usual number laid by these birds, it is evident that two pairs were making use of each nest."

E. Beapré reports (A. C. Bent, *Life histories of North American shorebirds*. U.S. Natl. Mus. Bull. 142, 1927, p. 39) that five pairs of Avocets, found by him on a small lake in southern Alberta, occupied three nests, one of which contained eight eggs, another seven and the third four.

Table 1. Clutch size of American Avocets at Dowling Lake, Alberta in 1967 and 1970.

Clutch Size	Number of nests 1967	1970
1	1	1
2	2	2*
3	1	1
4	4	3
5	3	0
6	1	1
7	5	3
8	0	2
Total	17	13
Mean clutch size	4.71	4.85

*One nest also contained two Common Tern eggs.

ERRATA

I made some mistakes in my article "Great Blue Heron colonies in Saskatchewan in 1970" which was printed in the December, 1970, *Blue Jay.* The sentence on page 159 "Sixty percent of 15 colonies north of Saskatoon, 50° 07′ N, were on lake islands as compared to only 19 percent of 16 colonies south of that city." should read: "Sixty *three* percent of *16* colonies north of Saskatoon, *52°* 07′ N, were on lake islands as compared to *13* percent of *15* colonies south of that city." The sentence on page 160: "Great Blue Herons nested together with Double-crested Cormorants in birches and aspen poplars at Kazon Lake", should read: "Great Blue Herons nested together with Double-crested Cormorants in birches and aspen poplars at *Churchill* Lake." One figure in Table 2, under "Total" reads "12", but should read *"13".—Kees Vermeer*, Edmonton.

OBSERVATIONS ON THE CHURCHILL, STURGEON-WEIR AND SASKATCHEWAN RIVERS FROM PAUANAK TO THE PAS

by **S. D. Riome,** Nipawin, Saskatchewan

The ornithological map of Saskatchewan contains several areas which require field study and research. It is evident that in many cases the paucity of records is directly related to the inaccessibility of the area or the limited population density of the species. The Pasquia Hills and the Porcupine Hills of the east, the Moose Mountain and Wood Mountain of the south and the Great Sand Hills, Thickwood Hills and Mostoos Hills of the west support the premise. The creditable work of Dr. Robert Nero and his colleagues, evidence in publications covering the far north and northeast, show, however, that it is possible for trained and dedicated men to produce sophisticated literature when resources and time are made available.

One area which has seen a stream of men pass through it over the past two centuries while pursuing their objects of exploration, commerce, adventure or proselytism is the Churchill River, yet data relating to its flora and fauna are extremely limited.

In 1967, between July 1 and July 15, the writer travelled by canoe as a member of the Historic Trails Canoe Club from Otter Rapids to The Pas, and in 1969, between June 29 and July 6 from Patuanak to Otter Rapids. The overall distance covered totalled 518 miles through a drop of 528 feet in altitude. The principal concern was to travel safely between two points within a predetermined schedule. Each man was expected to perform his duties toward that end, and any deviation was understandably misinterpreted by his colleagues. Fortunately, as the men became acquainted with my interest in wildlife, they soon began to watch for and point out every flower, mammal and bird en route, even the distinction between "right and left turns"! The publication of the resultant records is intended solely to show what was seen or heard or taken under the circumstances of limited skill, experience and time.

Sightings are recorded in geographical sequence from west to east, followed by a date. By referring to the accompanying map and key, the locality may be found. Example: "Common Loon . . . L2 June 28-69" indicates "Common Loon, Shagwenaw Lake, June 28, 1969".

Seventy-nine species of birds are listed, followed by nine species of mammals and 12 species of flowers. In addition a Red-sided Garter Snake was seen near Needle Falls on July 2, 1969 and Tiger Swallowtail butterflies were photographed at Mountain Portage on July 2, 1967.

As one of the few who have had the privilege of sensing the proud, pristine, untrammelled beauty of the Churchill River, I contemplate with a grievous sense of impending loss the plans now being made to build a massive forest-product processing plant on one of its nourishing tributaries.

As an appendix to my list, I am grateful to be able to include the observations made by John Goering on the Churchill River from Ile-a-la-Crosse to Otter Rapids, in the month following my second trip.

John Goering is a man of wide interests and considerable stamina, a professional engineer and educator, who is at present teaching at Trinity College School, Port Hope, Ontario. His interests include many areas of natural history and conservation, but his real passion is wilderness travel. During the past six summers, he has undertaking gruelling trips by canoe and paddle covering every sector of northern Canada. In 1966 he was a member of an expedition down the Coppermine River to its mouth on the Arctic Ocean, one of his team mates being Pierre Elliott Trudeau. In 1969, he travelled with seven other men from Ile-a-la-Crosse through the

Churchill River to Otter Rapids. His keen interest in natural history enabled him to record 22 species of birds positively identified and three species of mammals. These observations (which I have listed as an appendix) add to the extremely limited data for the area.

Acknowledgments

In addition to Mr. John Goering, who has kindly made his list of observations available for publication, sincere appreciation is extended to: Dr. George Ledingham who identified the 12 plant specimens taken and offered considerable editorial advice; Dr. Robert Nero who suggested the concise method of recording a large volume of data and checked the copy for accuracy; Dr. C. Stuart Houston who read the material and gave freely of his considered criticism; Dr. Kees Vermeer and Mr. Robert Isbister of the Canadian Wildlife Service who graciously produced the accompanying map; my wife, Gladys, who patiently typed the drafts; my canoeing partners who made the whole exciting experience possible.

Birds

Common Loon: L2, June 28-69; L19, July 6-69; L22, July 1-67; L27, July 4-67; L34, July 8-67; L41, July 12-67.

Red-necked Grebe: L6, June 29-69; L8, June 30-69; L22, July 1-67; L27, July 3-67; L38, July 10-67.

White Pelican: L4, June 29-69; L10, July 1-69; 35 on a small island between L12 and L13 with 20 "white-headed" unidentified gulls on July 2-69; L35, July 8-67; approximately 100 at L38, July 10-67.

American Bittern: L8, June 30-69; L43, July 14-67.

Mallard: L2, June 28-69; L6, June 29-69; L28, July 5-67; L29, July 6-67; L38, July 11-67, 2 females with swimming young; L41, July 12-67, female with young.

Blue-winged Teal: L10, July 1-69; L27, July 3-67; L45, July 14-67.

American Widgeon: L10, July 1-69; L27, July 3-67.

Lesser Scaup: L3, June 29-69; L6, June 29-69.

Common Goldeneye: L2, June 28-69; L10, July 1-69; L19, July 6-69; L23, July 2-67; L27, July 2-67; L28, July 3-67; L34, July 9-67; L36, July 10-67, 9 males, 1 female with young; L38, July 10-67; L39 July 11-67; L41, July 12-67.

Bufflehead: L5, June 29-69, female with young; L8, June 30-67.

White-winged Scoter: L6, 1 with 8 Surf Scoters, June 29-69; L40, 3 birds July 11-67; L43, 2 birds, July 14-67; L45, July 14-67.

Surf Scoter: L6, 8 birds, June 29-69.

Common Merganser: L32, July 8-67; L38, July 10-67, 2 adults with 8 young; L41, July 12-67.

Red-breasted Merganser: L15, July 2-69.

Sharp-shinned Hawk: L2, June 28-69.

Cooper's Hawk: L38, July 10-67.

Red-tailed Hawk: L39, July 11-67; L41, July 12-67; L46, July 14-67.

"Eagle": 42 eagles were recorded between Patuanak and The Pas. In addition to the positive Golden and Bald, the following uncertain sightings are listed for numerical information; L3, 1 bird, June 29-69; L7, 3 birds, June 30-69; L10, 2 birds, July 1-69; L13, 7 birds, July 1-69; L19, 3 birds, July 6-69; L22, 1 bird, July 2-69; L31, 3 birds, July 7-67; L34, 1 bird, July 8-67; L43, 2 birds, July 14-67.

Golden Eagle: Pair about nest, 1 mile west of Keg Falls between L27 and L28; L28, 1 bird, July 6-67.

Bald Eagle: L2, 1 immature, June 28-69; L8, 1 bird, June 30-69; L16, 2 birds, July 3-69; I bird at Birch Rapids between L17 and L18, July 4-69; L27, 1 bird, July 3-67; L29, 1 bird, July 6-67; pair with flying immature L36, July 9-67; L38, 1 bird, July 10-67; L39, 2 birds, July 11-67; L41, 3 birds, July 12-67.

Osprey: L9, July 1-69; L39, July 1-69; L41 July 12-67.

Pigeon Hawk: L38, July 10-67.

Sparrow Hawk: L38, July 10-67.

Ruffed Grouse: L27, July 4-67, female in grey phase with young; L28, July 5-67, grey phase; L31, July 7-67, female in grey phase with young; L41, July 12-67, female in brown phase with young.

Killdeer: L43, July 14-67.

Spotted Sandpiper: L2, June 28-69; L3, June 29-69; L17, July 3-69; L18 July 5-69; L23, July 2-67; L27, July 3-67; L34, July 8-67; L35, July 9-67, several; L38, July 10-67, several.

Greater Yellowlegs: L5, June 29-69; L7, June 30-69; L13, July 2-69; L18, July 5-69; L43, July 14-67.

Lesser Yellowlegs: L44, July 14-67.

Franklin's Gull: L2, June 28-69; L36, July 9-67; confluence of L44 and L46, July 14-67, thousands feeding on flying insects; L45, July 14-67.

Bonaparte's Gull: L6, June 29-69.

Common Tern: L7, June 29-69; L8, June 30-69; L25, July 3-67; L27, July 4-67; L32, July 8-67; L38, July 10-67; L40, July 11-67.

Black Tern: L3, June 29-69; L6, June 29-69, abundant; L10, July 1-69; L22, June 28-69; L28, July 5-67; L29, July 6-67; L38, July 10-67; L40, July 11-67.

Great Horned Owl: L41, July 13-67; L44, July 14-67, adult with 2 flying young.

Common Nighthawk: L8, June 30-69; L27, July 4-67; L38, July 10-67.

Belted Kingfisher: L2, June 28-69; L6, June 29-69; L7, June 30-69; L8, June 30-69; L13, July 1-69; L17, July 4-69; L22, July 1-67; L28, July 5-67; L32, July 8-67.

Yellow-shafted Flicker: L15, July 2-69; L18, July 5-69; L19, July 6-69; L23, July 3-67; L30, July 6-67, adult with young; L34, July 9-67.

Pileated Woodpecker: L2, June 28-69; L15, July 2-69; L22, July 1-67.

Yellow-bellied Sapsucker: L15, July 2-69; L22, July 2-67; L24, July 3-67; L28, July 5-67; L41, July 12-67.

Hairy Woodpecker: L21, July 6-69; L22, July 2-67.

Downy Woodpecker: L41, July 13-67.

Eastern Kingbird: L6, June 29-69; L45, July 14-67.

Eastern Phoebe: L32, July 8-67; L37, July 10-67.

Yellow-bellied Flycatcher: L41, July 13-67, yellow-breasted and yellow-throated, most likely of this species.

Traill's Flycatcher: L29, July 9-67.

Least Flycatcher: L8, June 30-69; L13, July 2-69; L21, July 6-69; L27, July 4-67; L28, July 5-67; L37, July 10-67; L41, July 12-69.

Olive-sided Flycatcher: L21, July 6-69.

Tree Swallow: L22, June 28-60, July 2-67; L29, July 6-67; L45, July 14-67.

Bank Swallow: L45, July 14-67.

Barn Swallow: L38, July 10-67.

Common Raven: L2, June 28-69; L7, June 30-69; L10, July 1-69; L17, July 4-69; L19, July 6-69; L27, July 4-67; L34, July 8-67; L38, July 10-67; L41, July 12-67; L45, July 14-67.

Common Crow: L2, June 28-69; L10, July 1-69; L45, July 14-67.

Black-capped Chickadee: L27, July 4-67; L41, July 13-67; L43, July 14-67; L46, July 14-67.

Boreal Chickadee: L28, July 6-67.

Brown Creeper: L39, July 11-67.

Robin: L6, June 29-69; L8, June 30-69; L38, July 10-67.

Hermit Thrush: L2, June 28-69; L8, June 30-69; L18, July 4-69; L39, July 11-67.

Swainson's Thrush: L8, June 30-69; L13, July 1-69; L22, July 1-67; L27, July 3-67; L32, July 8-67; L34, July 8-67; L38, July 10-67; L41, July 12-67; L45, July 14-67.

Ruby-crowned Kinglet: L19, July 6-69.

Cedar Waxwing: L27, July 3-67; L40, July 11-67; L41, July 13-67.

Red-eyed Vireo: L2, June 28-69; L7, June 30-69; L8, June 30-69; L10, July 1-69; L19, July 6-69; L22, June 28-67; L24, July 3-67; L27, July 4-67; L28, July 5-67; L32, July 8-67; L38, July 10-67; L41, July 12-67.

Philadelphia Vireo: L34, July 8-67.

Tennessee Warbler: L2, June 29-69; L8, June 30-69; L13, July 2-69; L15, July 2-69; L17, July 4-69; L19, July 6-69; L41, July 13-67.

Yellow Warbler: L3, June 29-69; L7, June 30-69; L8, June 30-69; L10, July 1-69; L25, July 3-67; L34, July 8-67; L38, July 10-67.

Myrtle Warbler: L22, July 2-67; L29, July 6-67.

Chestnut-sided Warbler: L27, July 5-67.

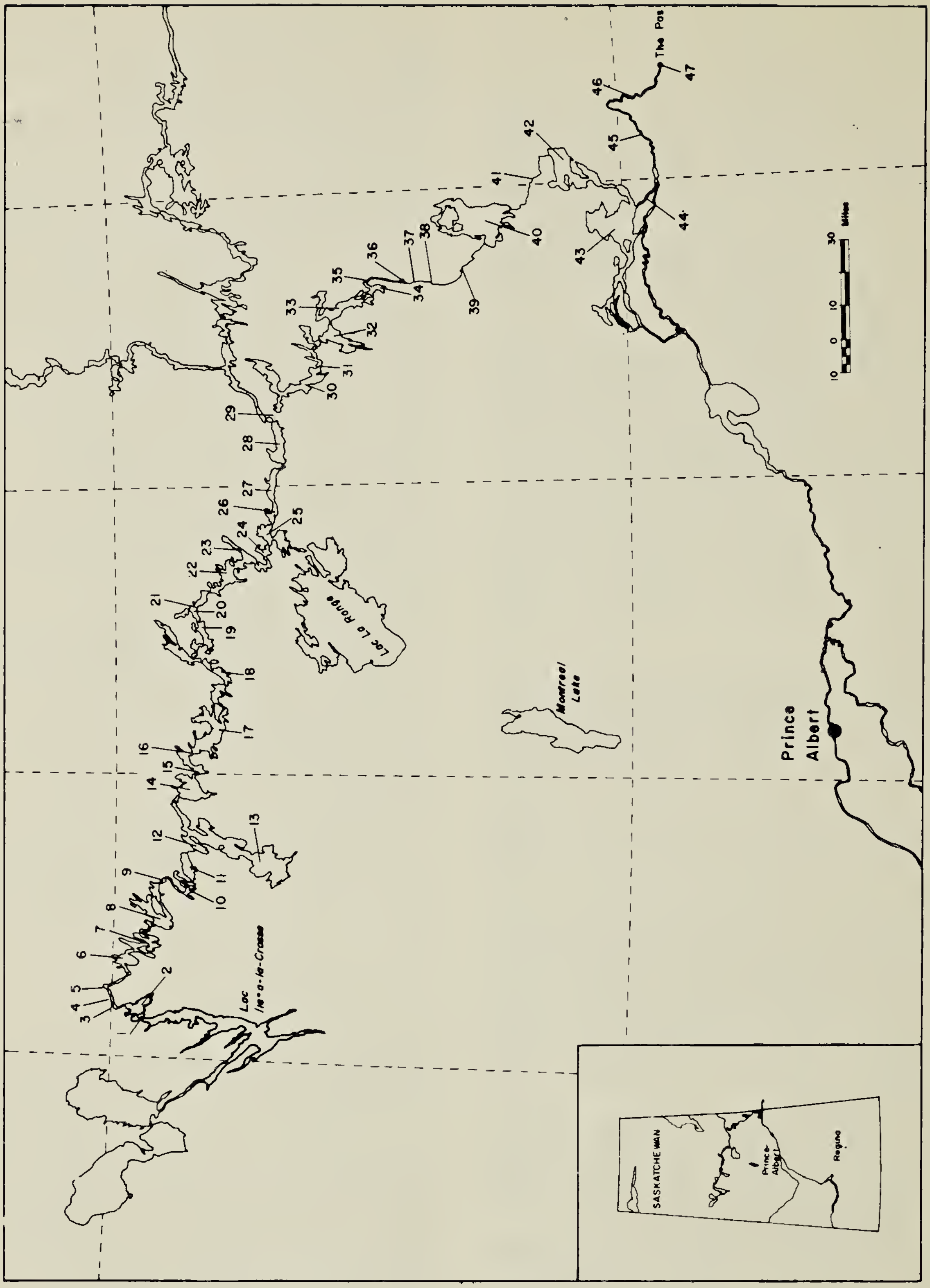

Fig. 1. Observation points from Patuanak to The Pas. L1 Village of Patuanak; L2 Shagwenaw Lake; L3 Drum Rapids; L4 Leaf Rapids; L5 Deer Rapids; L6 Dipper Lake; L7 Primeau Lake; L8 Knee Lake; L9 Elak Dase Indian Reserve; L10 Dreger Lake; L11 Sandy Lake; L12 MacDonald Bay; L13 Snake Lake; L14 Sandfly Lake; L15 Needle Falls; L16 Silent Rapids; L17 Black Bear Island Lake; L18 Trout Lake; L19 Dead Lake; L20 Hayman Lake; L21 Great Devil Rapids; L22 Otter Lake; L23 Mountain Lake; L24 Drope Lake; L25 Nistowiak Lake and Falls; L26 Drinking Lake; L27, Keg Lake; L28 Trade Lake; L29 Frog Portage; L30 Wood Lake; L31 Grassy Narrows; L32 Pelican Lake; L33 Mirond Lake; L34 Corneille Lake; L35 Dog Rapids; L36 Birch Rapids; L37 Leaf Rapids; L38 Scoop Rapids; L39, Snake Rapids; L40, Amish Lake; L41, Lower Sturgeon-Weir; L42, Namew Lake; L43 Cumberland Lake; L44 Tearing River; L45 Barrier Settlement; L46 Saskatchewan River; L47 The Pas, Manitoba.

Bay-breasted Warbler: L17, July 4-69; L18, July 5-69; L24, July 3-67; L27, July 4-67.

Ovenbird: L8, June 30-69; L10, July 1-69; L13, July 2-69; L27, July 4-67; North east shore of L28 due north of Archibald Island, July 5-67, a nest with 4 eggs, photographed; L36, July 10-67; L41, July 13-67.

Northern Waterthrush: L2, June 28-69: L15, July 2-69; L17, July 4-69.

Yellowthroat: L2, June 29-69; L7, June 30-69; L10, July 1-69; L22, July 2-67, June 28-69; L31, July 7-67; L32, July 8-67; L36, July 10-67; L43, July 14-67.

Yellow-headed Blackbird: L43, July 14-67.

Red-winged Blackbird: L2, June 28-69; L10, July 1-69; L29, July 6-67; L38, July 10-67; L39, July 11-67; L43, July 14-67.

Common Grackle: L3, June 29-69; L7, June 30-69; L10, July 1-69; L19, July 6-69; L27, July 3-67; L29, July 6-67; L34, July 8-67.

Brown-headed Cowbird: L45, July 14-67.

Evening Grosbeak: L41, July 13-67.

Savannah Sparrow: L6, June 29-69.

Slate-colored Junco: L17, July 4-69.

Chipping Sparrow: L18, July 5-69; L22, July 1-67; L34, July 8-67; L41, July 13-67.

Clay-colored Sparrow: L15, July 3-69.

White-throated Sparrow: L2, June 28-69; L8, June 30-69; L13, July 2-69; L15, July 3-69; L22, June 28-69; L23, July 2-67; L24, July 3-67; L27, July 4-67; L32, July 8-67; L41, July 12-67.

Song Sparrow: L7, June 30-69; L8, June 30-69; L13, July 2-69; L15, July 3-69; L19, July 6-69; L22, June 28-69; L24, July 3-67; L30, July 6-67; L32, July 8-67; L34, immature birds, July 8-67; L36, July 10-67; L39, July 11-67; L41, July 12-67.

Mammals

Black Bear *Euarctos americanus americanus*: L18, July 4-69, sow with 2 cubs; L27, July 3-67; L29, July 6-67; L45, July 14-67.

Snowshoe Rabbit *Lepus americanus*: L9, July 1-69; L27, July 4-67.

Red Squirrel *Tamiasciurus hudsonicus*: L17, July 4-69; L18, July 4-69.

Beaver *Castor canadensis*: L9, July 1-69; L17, July 3-69, skull found and retained by Kamil Pecher, 88mm. x 60 mm.; L28, July 5-67, trees cut by beaver; L41, July 10-67; L45, July 14-67.

Deer Mouse *Peromyscus maniculatus borealis*: 15 trap nights from Patuanak to Otter Lake, took two specimens now kept in collection of David Riome, #0071: L13, July 1-69, LT 76mm., LO 171 mm., HF 20 mm., #0072: L19, July 6-69, LT 65 mm., LO 153 mm., HF 18 mm.

Muskrat *Ondatra zibethicus*: L41, July 10-67.

White-tailed Deer *Odocoileus virginianus*: L27, July 5-67; another deer seen at L20, July 6-60, but species not identified.

Moose *Alces alces*: 10 miles north of Montreal Lake, July 1-67; L17, July 4-69, droppings; L28, July 5-67, droppings; L41, July 13-67, tracks; L42, July 13-67, bull and cow.

Bison *Bison bison*: Solitary animal, south tip of Montreal Lake, June 28-69.

Flowers

Wood Lily *Lilium philadelphicum*: L17, July 3-69; L32, July 7-67; L34, July 8-67.

Stemless Lady's Slipper or Two-leaved Lady's Slipper *Cypripedium acaule*: L34, July 8-67.

Blunt-leaved Sandwort *Arenaria lateriflora*: L13, July 1-69.

Pink Corydalis *Corydalis sempervirens*: L14, July 2-69.

Rough Cinquefoil *Potentilla norvegica*: L14, July 2-69.

American Vetch *Vicia americana*: L18, July 4-69.

Pink Wintergreen *Pyrola asarifolia*: L2, June 28-69.

Tufted Loosestrife *Lysimachia thyrsiflora*: L14, July 2-69.

Starflower *Trientalis borealis*: L18, July 4-69.

Marsh Hedge-nettle *Stachys palustris*: L14, July 2-69.

Twinflower *Linnaea borealis*: L13, July 1-69; L17, July 2-69.

Harebell *Campanula rotundifolia*: L18, July 4-69.

APPENDIX

Observations made by John Goering on the Churchill River between Ile-a-la-Crosse and Otter Rapids, August 9-22, 1969.

Birds — Common Loon, Red-necked Grebe, White Pelican, Great Blue Heron, Mallard, Common Merganser, Broad-winged Hawk, Bald Eagle, (20-30 between Ile-a-la-Crosse and Black Bear Island Lake), Osprey, Sparrow Hawk, Ruffed Grouse, Greater Yellowlegs, Lesser Yellowlegs, Common Tern, Black Tern, Belted Kingfisher, Common Raven, Black-capped Chickadee, Black-and-white Warbler, Red-winged Blackbird, White - throated Sparrow, Song Sparrow. In addition, several "white-headed gulls" and a "flock of blackbirds" were reported.

Mammals — 1 Black Bear at Dipper Rapids and 1 Black Bear at Trout Lake, 1 White-tailed Deer at Otter Rapids.

THE BUTTERFLY COLLECTING EXPEDITIONS OF GEORGE SHIRLEY BROOKS TO CHURCHILL, MANITOBA, AND AN UNPUBLISHED MANUSCRIPT CONCERNING THEM

by **John H. Masters,** Box 7511, St. Paul, Minnesota

George Shirley Brooks is best known for the butterfly collections he made at Churchill, Manitoba and for his published list of Manitoba Lepidoptera (1942). Shirley Brooks (he used his middle name) was born in Suffolk, England in 1872. He developed an interest in natural history during his youth and with his brother, C. J. Brooks, he built collections of English Lepidoptera (butterflies) and Diptera (true flies). He came to Canada in 1911 and soon went to work for the Canadian National Railways in Transcona, Manitoba. In the small amount of spare time available to him he continued his hobbies which included stamp collecting as well as entomology, but it was not until his retirement in 1937 that he was able to devote a great deal of time to them. Brooks was very active in the organization of the Natural History Society of Manitoba, for which he served at one time as president, and in the founding of the Manitoba Museum (now the Manitoba Museum of Man and Nature), for which he served as honorary curator of Entomology.

After his retirement, Brooks made use of his railroad pass to make eight collecting expeditions to Churchill in the years 1937, 39, 40, 41, 42, 43, 44 and 46. While many others had collected and studied the fauna at Churchill, Brooks was the first to devote time to it over several seasons, and thus obtained a very complete sampling of the Churchill area fauna. In order to offset the cost of his annual trip to Churchill, he sold duplicate specimens to museums and collectors. He always stipulated that he was selling them to offset his travel costs to Churchill and the low price that he asked for the specimens (an average of about 15¢ per specimen) certainly indicates that this was true. One effect of this activity is that it spread his Churchill specimens into many private and institutional collections, marking with them the fame of Churchill as a collecting locality. A second and more indirect benefit of this activity is that it created a good deal of correspondence, and since Brooks kept good records and carbon copies of his letters and invoices, a great deal of valuable information can be gleaned from them. The Brooks' correspondence files was one of my most beneficial sources of information for my study of Churchill butterflies (Masters, 1971). Even the invoice records are important because they provide a good indication of the relative abundance of the species he collected at Churchill. Because of limited storage space, his personal collection was not especially large. For the most part it was strictly restricted to Manitoba specimens and very short series. Brooks' collection and correspondence files were both bequeathed to the Manitoba Museum of Man and Nature in Winnipeg.

Brooks' list of Manitoba butterflies was patterned after an earlier list of Manitoba Lepidoptera (Brodie, 1929) and was inspired by the knowledge of several new species to the Manitoba list from his first three collecting trips to Churchill. This is the only manuscript that he ever published and, no doubt, the difficulties he encountered with its publication discouraged further efforts. W. J. Brown was then editor of the *Canadian Entomologist* and was obviously not interested in Brooks' manuscript; although he accepted it for publication on October 7, 1940, it was not published until February, 1942. This was a considerable delay for that time period and Brown generally did not respond to inquiries by Brooks during the interval. Another problem was that seven rather serious typographical errors appeared in the published form.

The Brooks' checklist (1942) is much abbreviated. It contains a list of Manitoba species and localities, but with no notations on the flight dates, abundances, habitats or habits of the species. An unpublished manuscript, found attached to a letter to Austin H. Clark of the Smithsonian Institute, dated January 5, 1940, is also very interesting. It summarizes the results of Brooks' 1937 and 1939 collecting expeditions along the Hudson Bay Railroad from The Pas to Churchill. It is reproduced below in its original form:

* * * * * *

"DIURNAL LEPIDOPTERA
TAKEN JUNE AND JULY, 1937
AND 1939 BETWEEN N. LAT 54 &
59 by G. Shirley Brooks.
THE MANITOBA MUSEUM,
WINNIPEG"

"*Papilio machaon* var *hudsonianus* Clark. Gillam. (Old name Kettle Rapids)

Papilio glaucus var *canadensis* R. & J. Common at Gillam, and not rare at Churchill.

Euchloe ausonides Bdv. Gillam and Churchill.

Colias hecla var *glacialis* McLach. Churchill

Colias hecla var *hela* Stkr. Churchill. Rare.

Colias eurytheme Bdv. Churchill.

Colias interior Scud. The Pas, Mile 200 H.B. Ry.

Colias gigantea Stkr. The Pas, Mile 200 H.B. Ry., Churchill.

Colias palaeno var *chippewa* Kby. Mile 200 H.B. Ry., Gillam, Churchill.

Colias nastes var *moina* Stkr. Churchill.

Pieris occidentalis var. *calyce* Edw. Churchill.

Pieris protodice Bdv. & LeC. Churchill.

Pieris napi, gen. vern. *oleracea* Harr. Churchill.

Oeneis chryxus var. *calais* Scud. Gillam.

Oeneis jutta Hbn. Churchill. Very common.

Oeneis polixenes Fabr. Churchill. Very common.

Oeneis melissa Fabr. Churchill. Rather rare.

Erebia rossi var *ornata* Leuss. Churchill. Very common.

Erebia disa var *mancinus* Dbldy. & Hew. Gillam. Rather rare.

Erebia discoidalis Kby. Churchill. Very common in '39, not so in '37.

Brenthis myrina Cram. The Pas, Gillam, Mile 200.

Brenthis aphirape var *dawsoni* B.& McD. The Pas, Gillam, Churchill. Very common.

Brenthis chariclea var *boisduvalii* Dup. Churchill.

Brenthis chariclea var. *grandis* B.& McD. The Pas.

Brenthis freija Thun. Gillam, Churchill.

Brenthis polaris var *gronlandicus* Skin. Churchill.

Brenthis frigga var *gibsoni* B.&B. The Pas, Gillam, Churchill.

Brenthis bellona Fabr. Gillam.

Nymphalis milberti Godt. Churchill.

Nymphalis antiopa L. Churchill.

Vanessa atalanta L. Churchill.
Vanessa cardui L. Gillam, Churchill.
Limenitis arthemis Dru. Mile 200.
Limenitis arthemis var *rubrofasciata* B. & McDd. Mile 200.
Limenitis archippus Cram. Mile 200.
Lycaena dorcas Kby. Mile 200.
Everes amyntula Bdv. Mile 200, Gillam, Churchill.
Plebeius scudderii Edw. Mile 200.
Plebeius aquilo Bdv. Churchill.
Glaucopsyche lygdamus var *couperi* Grt. Churchill. Very common.
Pyrgus centaureae Ramb. Gillam, Churchill.

"It is interesting how some of our common southern forms work North. The Pas is just below Lat. 54 and Churchill just under 59. The railroad is 510 miles long and goes in a N.E. direction to Kettle Rapids crossing over the Nelson River; thence it is nearly straight North. Churchill town is surrounded for about 4 miles by tundra, after that the country is covered by bush and small timber, spruce and larch, with willow."

"The butterflies were named by Dr. McDunnough."

"*B. frigga* v *gibsoni* is, so far as I can tell, identical with *saga*. Dr. W. T. M. Forbes has told Austin H. Clark that he has received specimens of *P. machaon hudsonianus* from Churchill. I did not see it in my two trips, nor can I learn of it being taken there."

* * * * *

A few notations, to update to current taxonomic concepts in Lepidoptera, would seem to be required: The species placed by Brooks in *Brenthis* are now placed in *Boloria;* the species *aphirape* is now considered as being *eunomia;* the specimens that Brooks placed as *chariclea* are undoubtedly *titania*, although *chariclea* is also reported from Churchill. The designation of "var" by Brooks is undoubtedly a shortened form of variety; he used it, however, for taxons usually considered as subspecific.

ACKNOWLEDGMENTS

I am deeply indebted to Dr. Robert W. Nero and H. Harvey Beck, formerly of the Manitoba Museum of Man and Nature, for allowing me access to the Museum's collections and the Brooks correspondence files, without which this study would have been impossible.

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OF ERAGROSTIS AND RANGE EXTENSIONS; 1970 BOTANICAL REMARKS

by **J. H. Hudson,** 103 Richmond Crescent, Saskatoon

In the summer of 1970, for the first time since 1965, I had the good fortune to collect a plant new to Saskatchewan. It is *Eragrostis poaeoides* Beauv., a native of Europe. Boivin (1967) reported it from no further west than Ontario.

It was collected, as J. H. Hudson #2680, in the C.N.R. downtown yards, west from about the 500 block 1st Avenue, amid railway spurs on soil made largely of cinders plus gravel, on July 29, 1970. Some account of how I came to find it may be of interest. A few days earlier Mr. J. Greaves of Saskatoon had brought me for identification a flowering stem of *Echium vulgare*, a European Borage Family weed with a long spike of large deep blue flowers. This has previously shown up in Saskatchewan but plainly is not persistent. As I remembered what he had said of its habitat, it had come from a lot used for parking machinery somewhere near his place of employment on First Avenue. Only two plants had been seen. I went to the area and searched up and down railroad spurs for the *Echium.* I found none, but instead was repaid by finding several healthy colonies of a grass I did not know, which came out to be *Eragrostis poaeoides.*

The grass genus *Eragrostis* includes in Western Canada only three species of very rare weeds. It is in the tribe *Festuceae* and thus has several to many fertile florets above the two empty glumes. From other genera in *Festuceae* it may be told by the lemmas having only three nerves and these prominent under magnification; the spikelets are wholly glabrous (hairless) and have many flowers per spikelet.

Eragrostis poaeoides is separable from most of its genus by having wart-like glands on the lemmas and glumes; from the very similar *E. cilianensis* it may be told most easily by floral size as follows:

E. poaeoides — spikelets under 2 mm wide; lemmas, 10 to 20, and under 2 mm long.

E. cilianensis — spikelets over 2.5 mm wide; lemmas, 10 to 40, and over 2 mm long.

In life *Eragrostis poaeoides* is an undistinguished grass, looking like stunted *Setaria viridis* (Green Foxtail) from its flat wide leaves, but with a paniculate inflorescence vaguely suggestive of *Puccinellia nuttalliana* (Salt Meadow Grass).

Evidently there is still enough railway traffic to transmit new introduced weeds about.

Oddly enough, the *Eragrostis cilianensis* (All.) E. Mosher, mentioned in the foregoing, which was first collected in Saskatchewan at Estevan by me and reported in 1961, was found by me at Medicine Hat in 1970. The collection, Hudson #2700, October 19, 1970, came off the railroad spur just west of the Medicine Hat Brick and Tile Company's sewer pipe plant. Railroads again, it will be noted; it must be rod-riding westward, as Boivin (1967) gave the distribution as: Nova Scotia, Quebec to southeast Saskatchewan. Moss (1959) did not mention it for Alberta.

This *Eragrostis cilianensis,* an annual with several to many spreading-ascending culms 6 to 12 inches long, may be told from all other grasses one is likely to see hereabouts by the inordinate number of lemmas (flowers) per spikelet, of the order of 20 to 40.

Although not a record, it may be of interest to mention that I found *Lilaea scilllioides* (Poir.) Haum. again this summer, in the southern Dirt Hills south of Spring Valley. This was Hudson #2665, on muddy shore of small slough amid morainic hills, NE¼35-10-XXVIW2nd, altitude about 2700′. I had reported it as new to Saskatchewan on the strength of a Cypress Hills collection in 1961 (Hudson, 1962) but it turns out that Boivin and Dore first collected it in Saskatchewan in 1951 at Trossachs (B. Boivin, letter; also specimen in Fraser Herbarium).

Other interesting specimens which I found last summer were:

#2655, June 12, 1970, *Polygala paucifolia* Willd. Small marl fen, NW¼27-45-IW3rd (MacDowall area). A small plant with relatively large pink flowers. Reported by Breitung (1957) from further north.

#2658, June 12, 1970; #2668, July 16, 1970. *Valeriana dioica* L. var. *sylvatica* (Richards) Wats. Moist brushy soil at edge of McFarlane Creek, NE¼34-45-IW3rd (MacDowall area). Many reports in Breitung from further north. I had never seen it before in 18 years of looking in the wrong places.

#2670, July 16, 1970, *Scirpus hudsonianus* (Michx.) Fern. Marly bog of the bog-birch and small tamarack kind, NW¼27-45-IW3rd. Reported by Breitung, under the name *Eriophorum alpinum* L., from much further north. Here it was growing with *Scirpus cespitosus* L. var. *callosus Bigel.*, another northern species reported by Breitung south as far as Prince Albert; but I had collected the latter hereabouts the year before on SW¼ 34-45-IW3rd.

#2676, July 24, 1970, *Carex crawei* Dewey. Moist mossy calcareus fen, W. edge NW¼17-36-IIIW3rd (north of Floral). Reported in Breitung from Oxbow, based on a 1955 collection of mine. Since then Dr. G. F. Ledingham and I have found it here and there in southern Saskatchewan in marl bogs and seepages, but never so far north. As the standard eastern floras give its range west to Alberta in Canada, there must be old Saskatchewan collections not known to Fraser and Russell (1944) buried in eastern herbaria.

#2682, August 3, 1970, *Marsilea mucronata* A. Br. Wet mudflats in *Gratiola* zone of intermittently tilled slough bottom NW¼30-32-VIIIW3rd (Donavon). This habitat, although further north, agrees with that in Breitung, which is taken from the report in Fraser and Russell (1944) which summarizes material in the Fraser Herbarium. I had not seen this little fern like a four-leaved clover in a slough bottom before. I had been used to finding it in dry creek beds in areas of shallow or no glacial drift in southernmost Saskatchewan.

#2687 August 16, 1970 *Suckleya suckleyana* (Torr.) Rydb. Dry clay mudflats in field pothole, NWcor. L.S.D. 5 in 10-30-XIVW3rd, Rosetown area. Not reported from so far north in Breitung. The material is the flowering-seedling form mentioned by Harrington (1964) in Colorado, with a pair of large oblong cotyledons and a few rounded foliage leaves, but with flowers and fruit forming amid the leaf-bases.

#2697, October 2, 1970, *Sonchus oleraceus* L. in shady moist waste ground at foot of Broadway bridge. Although Breitung and Fraser & Russell state this to be frequent in gardens, Boivin (1967) omitted Saskatchewan from its distribution in Canada, and in the Fraser Herbarium there is of wild material from Saskatchewan only a 1917 collection of T. N. Willing. So it may justly be taken as rare. The common annual sowthistle is *S. asper* (L.) Hill, with leaves normally merely serrate; from this S. *oleraceus* may be told at a glance by having runcinate - pinnatifid leaves, the terminal division the largest, much as in *Lactuca biennis* or many of the mustards.

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Editor's Note: Those with literary inclinations might be interested to know that John Hudson titled his article "Of *Eragrostis* and Range Extensions" with a chapter heading in mind from Tolkien's *Lord of the Rings* — "Of Herbs and Stewed Rabbits."

GARDENS OF THE SKY

by **Al Grass**, 5666 Rumble Street, Burnaby, B.C.

Each year many thousands of visitors come to Manning Park (located about 140 miles east of Vancouver on the Trans-Canada highway) to see the dazzling display of colour in the alpine meadows. Reds, yellows, and blues splash themselves about with gay abandon to form one of nature's grand spectacles. Scientist and poet alike can find inspiration in the rocky peaks and rolling meadows where millions of wildflowers make their homes.

Dynamic, that's the high country for every living creature is in a race for time. Snow stays until late June at these heights (6000 feet and over)

Photo by Al Grass

'Gardens of the Sky": Two naturalists hiking in the alpine gardens of Manning Park. Photo shows first "bloom wave."

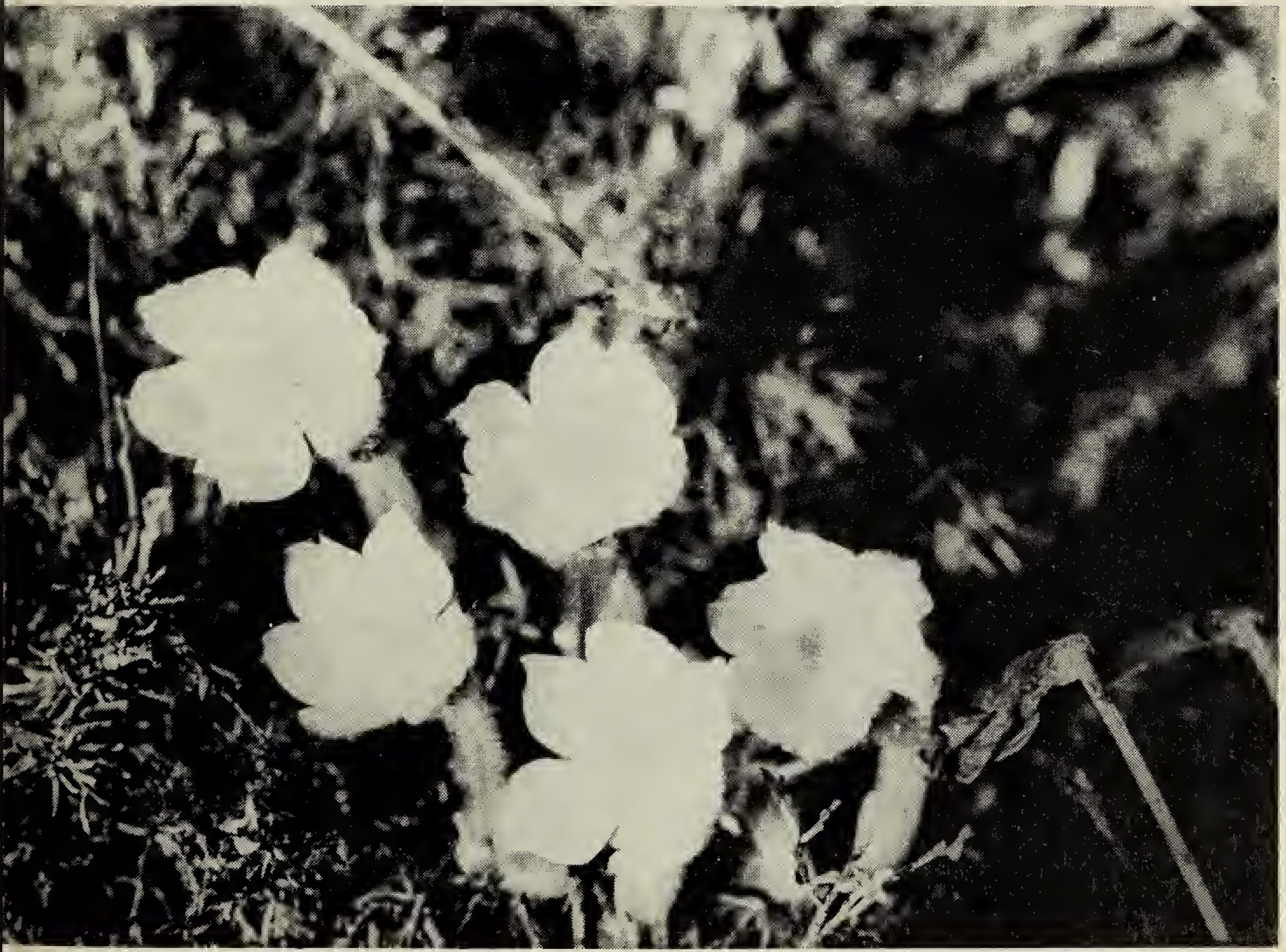

Photo by Al Grass

The Western Anemone, one of the first plants to bloom in the high country. Together with the Snow Lily it forms the first "bloom wave." The seed heads form a fuzzy ball giving the plant another name — "old man of the mountains."

and returns again in September. Even before the snows have melted and the meltwater rills rush to the valley below, some flowers, such as the Snow Lily *(Erythronium grandiflorum)* and Western Anemone *(Anemone occidentalis)*, are poking their heads above the icy carpet to bask in the life-giving sun.

The flowering of the meadows occurs in two stages called bloom waves. The first bloom wave consists of flowers predominantly yellow (Snow Lily) and white (Western Anemone). The second bloom wave incorporates blue (Lupine), red (Indian Paintbrush) and deeper yellows (Ragworts and Golden Fleabane).

To the alpine adventurer, each turn in the trail, each new rocky ledge, each new spongy bog, brings the thrill of discovering new truths in the never ending drama of nature. Who would not marvel at the delicate pink cups of Alpine Bog Laurel *(Kalmia polifolia)* cradled in a cushion of dew-laden moss or the tiny yellow bells of Mountain Heath *(Phyllodoce glanduliflora)?* What dull soul could fail to be thrilled at the discovery of a sparkling mountain brook whose banks were carpeted with the glorious crimson of Lewis' Monkey Flower?

The Blue Jay Bookshelf

BREEDING BIOLOGY OF CALIFORNIA AND RING-BILLED GULLS: A STUDY OF ECOLOGICAL ADAPTATION TO THE INLAND HABITAT. 1970. By Kees Vermeer. Canadian Wildlife Service Report Series, No. 12. The Queen's Printer, Ottawa. 52 pp. $1.25.

The Canadian public should be gratified to see each new number in the Canadian Wildlife Service's Report Series. This is an opportunity for the taxpayer to find out more about the work of the Service which he supports, and, especially, to learn more about the wildlife of his country and the facts about it that have been established by the Service's research. The most recent report, No. 12, has the added interest for *Blue Jay* readers of being the work of Kees Vermeer, to whom the Saskatchewan Natural History Society presented its 1970 Cliff Shaw Memorial Award for significant contributions to the *Blue Jay.*

The brief abstract at the beginning of the report indicates the nature of the study and its results (with an accompanying résumé in French to alert French-speaking Canadian readers to the value of the publication). Vermeer's study of the California Gull and the Ring-billed Gull at Miquelon Lake, Alberta in 1964 and 1965 set out to determine incubation periods, factors affecting choice of nest sites, reproductive success, feeding habits and growth rates, with the objective of learning whether these two species exhibit special adaptations to breeding in the interior. At each point, comparisons were established between these two inland species and the Glaucous-winged Gull, a marine species. After two seasons of investigation, Vermeer concluded that there are few basic differences between inland-breeding gull species and marine forms. The apparent adaptation to breeding in an inland habitat, he observed, is a shortened breeding season, marked by a compressed pre-egg period, a short laying period, and little repeat laying.

Vermeer's study and subsequent report is a straight-forward, informative piece of biological investigation, needing (to my mind) no further justification. However, it is typical of our current pre-occupation with the environmental crisis that the foreword should reiterate the theme: "The most important and useful reason for studying gulls lies in their value as indicators of the health of the habitat. . . . As gulls nest in colonies, changes in breeding populations can be readily detected and related to levels of chemical contamination. Ecological research on colonial birds is therefore valuable to monitor the effects of chemical pollution on the environment."

It seems to me unnecessary to place this particular study in such a "perspective", although it gives the writer an opportunity to tell us that a recent study (now in press) made by Vermeer and others on organochlorine residues in aquatic birds in the Canadian prairie provinces showed that California and Ring-billed Gulls are among the most contaminated.—*Ed.*

ECO-CATASTROPHE. 1970. By the Editors of *Ramparts*. Harper and Row, New York.

This book consists of a collection of eleven articles reprinted from *Ramparts* magazine. Like many collections, it is a mixed bag, the quality of the articles ranging from poor to good. Three of the articles ("The Eco-Establishment" by Katherine Barkley and Steve Weissman, "Why the Population Bomb is a Rockefeller Baby" by Steve Weissman, and "The Making of a Pollution-Industrial Complex" by Martin Gellen) are representative of criticism, by the so-called New Left, of the current wave of concern about environmental deterioration. The articles espouse the predictable point of view that problems of environmental contamination and over-population are products of the capitalist free enterprise system and will cease to exist in the People's Paradise to come. They suggest further that pollution abatement and population control are capitalist plots from which huge profits will be made. Like most articles of this type they contain an element of truth but make for dreary reading because of the paucity of real information and the overwhelming cynicism of the authors. The Editors of *Ramparts*, by the way, in their prologue to the book, leave no doubt where they stand — squarely behind the philosophy expressed by Barkley, Weissman, and Gellen.

The remaining articles are much more reasonable and responsible. The book draws its title from the lead article by Paul Ehrlich "Eco-Catastrophe!", a science fiction scenario describing the destruction of mankind resulting from the misuse of pesticides and the failure to limit population. Like all good science fiction, the article contains sufficient truth to fall within the realm of possibility.

Murray Bookchin ("Toward an Ecological Solution") pleads for a replacement of "the current destructive social system with a humanistic, ecologically oriented society." There is no doubt that a new social-environmental philosophy *is* required but philosophers have been pointing this out for generations. What is really needed is a plan for altering our system of education in a way that will bring this change about peacefully. Bookchin emphasizes the idea, originating with Desmond Morris and others, that modern society is too complex and present social groups are too large to permit sympathetic interchange between people. He suggests a decentralization to something approaching tribalistic society. Again, this seems to be vital, if we are to prevent the self-destruction of our society from frustration with modern bureaucracy, but clear means of reversing this trend are not offered.

Roger Rapoport ("Catch 24,400") deals with radiation leaks from United States Atomic Energy Commission plants and with the controversial subject of cancer incidence and radiation. It is a frightening indictment of present radiation controls.

George M. Woodwell ("Science and the Gross National Pollution") is a respected ecologist who has studied the ecological effects of radiation and the circulation of DDT in the biosphere.His brief contribution is critical of science which, since the Second World War, has been by and large a servant of industry, producing new products without consideration of their ecological impact. After several decades of increasing specialization in science we find that a broader view of man and environment is necessary. Woodwell asks "How do we make the transition from unrestrained growth to limited growth, even to stability in many segments of national economies—a stability dictated by the dimensions of the earth?" We must find a way.

Harvey Molotch ("Santa Barbara: Oil in the Velvet Playground") provides a detailed account of the struggles of a group of Santa Barbara residents who tried to prevent the pollution of their beaches with oil. Their struggle to induce politicians to enforce pollution controls and their subsequent failure will be all too familiar to conservationists who have tried to plead their case against the combined interests of industry and government. This is one of the best articles in the collection.

Oil exploration and transport in the Arctic have been important subjects of recent debate in the conservation field. Barry Weisberg's article, "Raping Alaska," provides a review of the problem in Alaska. The writer itemizes damage already done to the tundra and speculates about the extent of damage to be caused by the construction of the Trans - Alaska Pipeline Systems (TAPS). Not mentioned is the fact that ecological studies to estimate the probable extent of the damage and to recommend procedures that will minimize the dangers are well underway, financed by TAPS. Whether such studies would have been undertaken without the kind of public pressure exemplified by Weisberg's article is another matter. One thing is clear. The United States, facing increasing shortages of petroleum, will develop and transport oil on the Alaskan North slope, regardless of the opposition of conservationists. It only remains to attempt to ensure the best possible deal for the environment.

"California Water Plan" by Gene Marine is concerned with water shortages in over-populated and ever-expanding southern California. Real estate developers are a powerful lobby, and diversion of northern California rivers to provide water for the further growth of smog-choked Los Angeles seems inevitable. Lest this article seem divorced from the Canadian scene, the reader might review the proposed NAWAPA Plan for Continental Water Diversion (Bulletin of the Atomic Scientists, 1967, vol. 23, no. 7, pp. 8-7). Part of the Nawapa Plan involves diversion to the United States through the Souris River. In Saskatchewan we face a problem which is similar to that of the California water shortage. Should we divert water from the Peace and Athabasca Rivers, thereby causing ecological damage, to sustain the growth of population in southern Saskatchewan, particularly Regina? Or would it be more sensible to encourage the industrial development of northern centres, where water is more abundant?

The final article in the collection, "Trouble in Paradise" by Sol Stern, deals with the difficulties encountered by a few California residents who are attempting to revert to a simpler rural life away from the polluted and crowded city.

Eco-Catastrophe is a collection worth reading. The interest of the book is enhanced by the lithographs and woodcuts of M. C. Escher.—*D. H. Sheppard*, Regina.

Letters and Notes

SUMMER AROUND SPRING CREEK

Last summer was one of the most enjoyable summers of my life, as I spent it exploring and studying the wildlife around Spring Creek. My study area is a mile section of the creek which flows just to the south of our house on Normandy Drive. This section is located between Seventh Avenue and the Canadian National Railway overpass on the edge of the city.

After the spring runoff the shallower parts of the creek dry up, leaving a series of ponds which support a variety of wildlife. Two of the larger ponds are my main study areas.

Birds are plentiful around these ponds as reeds and willows provide good nesting places. Some of the bird species are: red-winged blackbird, yellow-headed blackbird, cowbird, horned lark, meadowlark, bobolink, killdeer and ducks.

Mammals include: ground squirrel, meadow-vole, mouse, rat, jack-rabbit, shrew and badger. Larger mammals such as deer and the porcupine may frequent the area as I have found their bodies, killed by passing trains, but I have never seen one alive near the ponds.

Reptiles are very uncommon, as kids catch garter-snakes, limiting their numbers in this area. Turtles probably live in the area although I have never seen any.

Amphibians are the most common vertebrates in the ponds, which include such familiar species as newts, salamanders, chorus frogs, cricket frogs, leopard frogs and bull frogs.

To explore the world beneath the pond's surface I use a long handled net with which I bring pond animals to the surface for study. Among the aquatic animals are stickle-back, snail, prawn, and insect lavae.

I hope to be able to study this area for many more years.—*Moray Lewis*, age 14, Moose Jaw.

THE BENNETT DAM

When the Bennett dam was started on the Peace River, I made myself unpopular around Fort St. John by predicting that

(1) The displaced Indians of the Peace and Finlay rivers (who were self-sufficient) would have to go on welfare — which would destroy them;

(2) The dam would lower the water level on the Mackenzie River system causing navigation difficulties, the drying up of the Delta marsh at Lake Athabasca, embarrassing reduction of water supplies to towns along the Peace, and a long-term problem of floating debris on the dam itself.

All these predictions made in 1959 have — *unfortunately* — come true! In addition, the lowering of water now seems to threaten the Whooping Crane breeding grounds. Let's hope the cranes will escape.

My son was up in the area last year and he tells me that the lake is so jammed with floating trees, etc., that you cannot put a boat into it. A number of moose and other carcasses were also floating about.

It is obvious that the Bennett Dam was constructed without an adequate study being made of the implications of the project.—*R. D. Symons*, Silton.

COMMENT FROM VICTORIA

Reading your editorial in the March 1971 *Blue Jay* caused me to send you the following comment.

The Victoria Natural History Society is starting a campaign to try and have the regulations concerning the giving of permits for killing birds tightened up. It is possible they will have a letter sent to the various wild life organizations, the Canadian and Provincial authorities, the Universities and the natural history societies to get their reaction. We are against experiments with birds (personally, I am also opposed to nest record schemes). A member of the British Museum puts it this way "Maybe it will be possible to bring Canada and the United States into line with more developed countries; otherwise the present random destruction of wild life will seriously affect their numbers. This [destruction] could not occur in Britain under our legislative acts." We in Canada have a long way to go.—*Albert R. Davidson*, Victoria, B.C.

REACTIONS TO COLLECTING

I enjoy reading the *Blue Jay* but one thing that irks me is that when a strange bird is sighted out of its normal habitat an attempt is made to "collect" it. I am referring to the article in the March 1971 *Blue Jay* — *Second Saskatchewan Record of the Ruff*, by J. F. Roy.

A Ruff was collected in Saskatchewan earlier by Frank Brazier and I wonder if it is standard procedure that when a new bird is sighted the country's leading naturalists and conservationists immediately shoot it? In the case of the Ruff in the Roy article it was identified by seven or eight bird experts. What further proof of its presence is needed? A stuffed bird in a museum does not prove where it was taken.

Another article I would refer to is by Clive Elliott, *Blue Jay*, March 1966, in which he mentions spending considerable time trying to kill the rare Poorwill during the nesting season. These birds are rare now. Why, therefore, do our naturalists try to make them rarer?

A few years ago I had an Indigo Bunting here in my shelterbelt. If I expected that personnel from the museum would try to collect it I would never report it. I feel that it could happen that these wanderers just could be the nucleus of a new breeding population in a new area.—*S. O. Jordheim*, White Bear, Saskatchewan.

THE RUFF IN SASKATCHEWAN

It was reported in the March issue of *The Blue Jay* that a Ruff had been seen near Saskatoon. This otherwise most interesting report was marred by a statement that an unsuccessful attempt was made to collect the bird. This was the second Saskatchewan record, the first having been shot in 1965. It must be presumed that an attempt will be made to shoot any further Ruffs that fly into the Province of Saskatchewan.

If this is the intention, it is reasonable to ask what is the purpose of shooting these birds. The Ruff is a species whose biology has been particularly well studied and documented in the past hundred years, especially in Holland, where it is illegal to shoot the species. It would be very difficult to make a case for shooting a Ruff in Saskatchewan on the grounds that somehow one was likely to contribute new information concerning the biology of the species, and still more difficult to demonstrate that the killing of the birds was a necessary measure for supplying information necessary for conservation. If such a case cannot be very clearly defended, then the suspicion must be strong that the purpose of killing a Ruff is largely to satisfy a desire to possess the skin of a rare bird, a desire that must be roundly condemned.

Owing to very rigorous protection laws in Britain, where the Ruff is protected by special laws, the Ruff has recently established a nesting colony in southern England, a situation that would have been quite impossible if ornithologists and museums had been permitted or had even wished to kill any of these birds. Is it too much to hope that Saskatchewan ornithologists will curb their urge to shoot any rare bird that passes through their Province and will afford the Ruff the same welcome and protection it has had in Holland and in Britain? Perhaps the Ruff might one day respond by nesting in the Province; at present it seems it is in too much danger of being preyed upon by those who consider themselves ornithologists.—*J. B. Tatum*, Ph.D., M.B.O.U., Chairman, Ornithological Records Committee, Southern Vancouver Island, 416-3187 Shelbourne Street, Victoria, B.C.

BLUEBIRD HOUSES

Last March my two children and I put up 85 bluebird houses along the roads in this area. A good number of bluebirds passed through but none chose to stay.

During the last week of June we checked 76 of the houses, the remaining nine houses were checked in December. We found 53 with tree swallow nests, 18 with sparrow nests, 12 with part nests and only two with nothing. We were well pleased with the number of Tree Swallows raised but we would have liked to have had some bluebirds as well.—*John L. Murray*, Lyleton, Manitoba.

RUFFED GROUSE

In the last issue of the *Blue Jay* March, 1971) there is a very good cture on page 18 identified as Spruce rouse. Wouldn't a closer look (breast nd tail feathers) suggest that this rd is a Ruffed Grouse?

I find the *Blue Jay* interesting and formative. If, at any time, I could lp with collecting or observing plants animals, I would be pleased.—*H.* . *Wolowski,* Box 418, Spiritwood, ask.

Ed. Note: Mr. Wolowski is correct nd I apologize to the photographer r using his picture as a filler and etting the wrong identification on it. hope that others will not hesitate to mment if they disagree with material rinted in the *Blue Jay.*

THE DOERS

In our December 1970 *Blue Jay* I as very pleased to note such a widepread effort by action groups all cross Canada to *do* something about ur environmental crisis.

Here is the good example of how e man not only became concerned nd informed but also became a "doer".

Carl Kimball, besides being an ctive farmer and rancher near Rocklen, Saskatchewan, takes time to be ell-informed about a large variety of bjects. He does not like to see wann destruction of the natural habitat f our wildlife. While many were bullozing brush and grass along the anks of the Poplar Creek which eanders through and near his land, arl purchased bushels of Reed anary-grass seed and scattered it long the edges of the creek for miles. Now", he declares, "this will grow nd spread along the banks of the reeks and rivers all the way to the cean, making cover for nesting water irds."

Who knows? Perhaps it will.—*E. lattson,* Rockglen.

BRUCE TRAIL VISITED

On a lovely spring afternoon, April 19, 1971 when I drove with friends on country roads from St. Catharines to Hamilton, I several times crossed the famous Bruce Trail. Each time we crossed the trail we stopped to wander, admire the view from the escarpment and kneel to study and photograph such lovely spring flowers as the Bloodroot, Hepatica and Coltsfoot.

Hepatica, April 19, 1971

Bruce Trail is a lovely ribbon of 400 miles of beautiful Ontario scenery stretching from Niagara Falls to the Bruce Peninsula. Much of the trail goes through private property but owners and hikers alike appreciate the value of being outdoors in natural surroundings. As land becomes available for sale, the government plans to contribute three quarters of the purchase price in order to maintain the area in undeveloped form. The Bruce Trail Association, 33 Hardale Crescent, Hamilton, Ontario, is attempting to raise the remaining amount of money by calling for donations from interested individuals. Some of our readers might like to contribute to the cause of conservation in Ontario.—*George F. Ledingham,* Regina.

NEXT BLUE JAY

Please submit articles and photographs for the September *Blue Jay* before July 15 if possible.—*Ed.*

'Some day son, all this will be yours'

WHITE OWL CONSERVATION AWARD

The White Owl Conservation Award Committee invites applications fron groups or individuals needing financial assistance for work directly related tc the improvement of the environment. Grants from $1000 to $2500 will be distributed on a bi-monthly basis throughout 1971. The Committee will also decide or this year's winner of the $10,000 White Owl Conservation Award. It is giver annually to the organization or individual deemed to have contributed mos towards the preservation of the Canadian environment and the public is invitec to send in nominations.

Information on both the grants and the Award may be obtained by writin to: The White Owl Conservation Award Committee, 2015 Peel Street, 7th Floor Montreal 110, Quebec.

DDT

We all know that the Bald Eagle, the Prairie Falcon and other birds at the end of long food chains are in real difficulties and may become extinct if the amounts of pestitides in the environment cannot be reduced. Clive E. Goodwin in Federation of Ontario Naturalists *Newsletter,* 12: p12, Jan.-Feb., 1971, gives evidence that suggests that other birds may also be suffering from too much DDT and PCB. Five or six collapsed or dented Herring Gull eggs were counted amon 51 nests surveyed on Pigeon Island Kingston on June 10, 1970. In Princ Edward County only one Red-winge Blackbird nest out of 35 produce young.

IMPACT OF POPULATION GROWTH

Paul R. Ehrlich and John P. Holdre have written in the March 26, 197 issue of *Science,* an article with th above title. The following sentence om their conclusions may perhaps imulate you to give the question furer study and consideration:

"Man's record as a simplifier of osystems and plunderer of resources n be traced from his probable role the extinction of many Pleistocene ammals, through the destructions of e soils of Mesopotamia by salination d erosion, to the deforestation of urope in the Middle Ages and the merican dustbowls of the 1930's, to e only some highlights . . . . Surely, en, we can anticipate that supplying od, fibre, and metals for a population en larger than today's will have a ofound (and destabilizing) effect on e global ecosystems under *any* set of chnological assumptions . . . . Preely because population is the most fficult and slowest to yield among the mponents of environmental deterioran, we must start on it at once. To nore population today because the oblem is a tough one is to commit rselves to even gloomier prospects years hence, when most of the asy" means to reduce per capita pact on the environment will have en exhausted. The desperate and reessive measures for population conl which might be contemplated then e reason in themselves to proceed th foresight, alacrity, and compasn today."

NEST RECORDS SCHEME

A. J. Erskine (*The Can. Fieldaturalist* 85:3-11, 1971) suggests at nest records may aid in following e effects of pollution on breeding rds. The effects would likely be most vious with scarce birds near the ds of predator food chains where xic chemicals are accumulated, and th water birds (see also Spotted ndpiper article page 59) into whose bitats runoff washes the pollutants. esting success, of course, cannot be easured if there are no longer any sts to be reported. Erskine says that y encouraging people to look at rds and their nests with care and dgment we are stimulating public vareness of our natural environment as something to be treasured . . . . Nest record cards may provide documentation acceptable to the legislators who must formulate the restrictions on man's abuses of the environment. . . . Like man, birds depend on their environment, but only man can ensure that it survives."

If you wish to contribute to the Prairie Nest Records Scheme write to H. W. R. Copland, Manitoba Museum of Man and Nature, 190 Rupert Ave., Winnipeg 2, Manitoba and ask for instructions and cards.

NATIONAL PARKS

A series of public hearings is being held across Canada to consider the Provisional Master Plans for the National Parks. The Saskatchewan hearings re Prince Albert National Park will be held on June 28 in the Saskatchewan Hotel in Regina and on June 30 in the Sheraton-Marlborough Hotel in Prince Albert. The hearings begin at 9 a.m.

Copies of the plan for Prince Albert National Park may be obtained for one dollar (money order or cheque payable to the Receiver General of Canada) from The Regional Director, National and Historic Parks Branch, Customs Building, Calgary, Alberta. Letters, briefs and requests to speak at the hearings should be mailed to the Secretary, Public Hearings Program, National and Historic Parks Branch, 400 Laurier Avenue West, Ottawa 4, Ontario.

If you agree with the objectives of the National Parks you should at least write to Ottawa and say that you agree with their policy on national parks. The policy of National Parks, in part, is as follows: "Objects of nature in National Parks are important parts of the national heritage and should be preserved unimpaired for the benefit, education and enjoyment of future generations." This means that there must be wise use, and certain limitations on the use, of our parks by people *now*.

EARLY SPRING FLOWERS

In the March 1971 *Blue Jay* we showed two Fenton Vance photographs. We simply called them Moss Phlox and Crocus Anemone, names commonly accepted for flowers well-known all across the short-grass prairies.

We must apologize to readers outside the prairie region, however, that we did not give more information. One Edmonton reader, who did not give his name, made a Xerox of the page, crossed off the assigned names and inserted common and scientific names as follows: Moss Campion, *Silene acaule* and Windflower, *Pulsatilla vulgras.* Plants with which our reader is familiar have appearances similar to ours and I realize that black-and-white photographs are not good for plant identification. But I want to make clear to our unnamed reader that he has wrongly identified both plants. Our illustrations are of a phlox, *Phlox hoodii,* common on dry hills, height only one to two inches and of Crocus Anemone, a Windflower, *Anemone patens wolfgangiana* (or *Pulsatilla ludoviciana* if you wish to subdivide the Anemone genus). At the same time, I wish to thank our reader for his interest in the matter.—*Editor.*

SCARLET TANAGER AT WEYBURN

On May 16, 1970 Farrell Hall and I caught sight of a red-breasted bird sitting at the top of a tree just before it took flight. The moment that I saw it in flight my immediate reaction was that it was a Scarlet Tanager, for the two striking features were its brilliant red body and the contrasting black wings and tail.

The next day I had several glimpses in tall trees on the grounds of the Saskatchewan Mental Hospital of distinctly red-bodied, black-winged birds which I presumed were Tanagers. Several Baltimore Orioles were also in the area that day, but they were clearly identifiable from any distance. Except for these two days, no other observation of Tanagers was made in the Weyburn area in 1970.—*Robert Kreba,* 144 Milne Street, Regina.

SWALLOWTAIL CATERPILLARS WANTED

Last September I obtained three caterpillars from Clanwilliam, Manitoba. They fed on parsnip. Two pupated but the third died. I put the pupae out to freeze and brought them int the house again after New Year's Day. In February they emerged as adults — a beautiful pair of Kahli Swallowtails. *(Papilio kahli).*

I am interested in raising some more swallowtail butterflies and would like the co-operation of *Blue Jay* readers Please watch for caterpillars on plants such as dill, carrot, parsnip, parsley caraway or celery. These will be mos noticeable in late August and early September. They will be smooth caterpillars, green with black bands, o black and orange.

Please send caterpillars or repor your find to Ronald Hooper, Box 205 Fort Qu'Appelle, Saskatchewan. I will help in the study of distributio and relationships of the Black, Kahli Gothic and Nitra Swallowtails.—*Ronald Hooper,* Fort Qu'Appelle.

THANK YOU

We, the Committee for Origina Peoples Entitlements, wish to than you for your contribution of $50.00 t go toward the Banks Island efforts.

Because of the support of many o our southern friends, we have bee able to have the Federal Governmen draw up a strict set of regulation which the Oil companies (Dimene and Elf Oil) have agreed to wor under. The rules set down are th strictest there have ever been. Th Companies have each filed a $100 000.00 bond with the Federal government as proof they will behave o Banks. They must pay 850 dolla each month to Trappers who serve a inspectors.

Again thank you. We will put yo on our mailing list for the month news letter, which will be publish beginning December 1st. — *Agn Semmler,* President COPE, Box 16 Inuvik, N.W.T.

THE SASKATCHEWAN NATURAL HISTORY SOCIETY

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HE BLUE JAY

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All items for publication should be submitted to George F. Ledingham, ditor, 2335 Athol Street, **Regina.**

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